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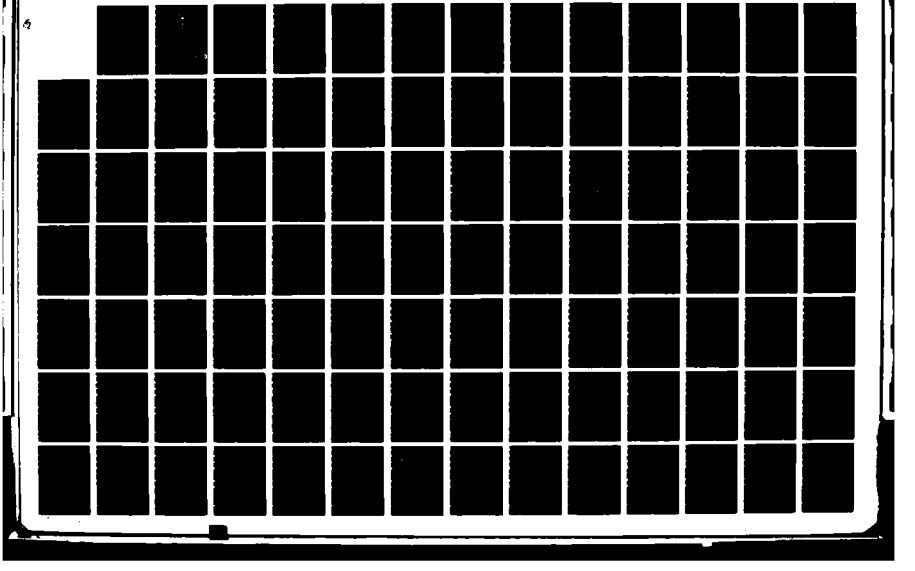

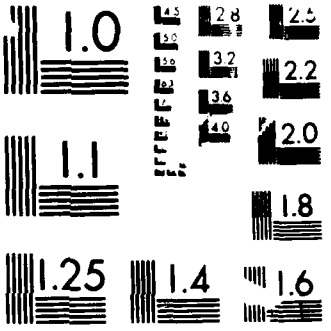

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AN ANALYSIS OF AIR FORCE SYSTEMS COMMAND'S INDUSTRIAL SURGE PREPAREDNESS PLANNING

THESIS

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AFIT/GSM/LSY/87S-10

AN ANALYSIS OF AIR FORCE SYSTEMS COMMAND'S INDUSTRIAL SURGE PREPAREDNESS PLANNING

THESIS

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the

Requirements for the Degree of

Master of Science in Systems Management

Kirk A. Hunigan, B.S.

Captain, USAF

September 1987

Preface

During 1986, the Reagan Administration began looking into changing its military force structure through the reduction of Intermediate-range Nuclear Forces (INF) in Europe. Since it is well known that the NATO forces are already out manned and out gunned by the Warsaw Pack forces, I was curious about how U.S. force structure, policy, strategy, and tactics might have to change. I reasoned that if the U.S. was going to maintain a credible deterrent to Soviet aggression while reducing its INF in Europe, then the U.S. would have to increase its conventional capability. To increase capability would not only require more U.S. servicemen to be stationed in Europe, but also require more artillery, tanks, aircraft, and munitions.

The question I decided to address was how could the Air Force sustain combat operations in a conventional war for perhaps longer than thirty days? I began looking into what the Air Force might need and how fast could the military-industrial complex begin to replace its material losses.

While looking for a means to satisfy my curiosity and to find a reasonable thesis topic, I settled on studying industrial surge preparedness planning.

The purpose of this study was to perform an analysis of Air Force Systems Command's industrial surge preparedness planning and policies as they are implemented into five acquisition product divisions.

Several people were extremely helpful to me while I was conducting my research. I would like to thank Major Mark Fredricks of the AIM Office who opened my eyes to the complexities of industrial base planning. I thank Ms. Etta Gayheart for taking the time to explain some of the industrial base initiatives at ASD. I also thank all of the interviewees who eagerly gave their time so that I might gain from their experiences. In addition, I thank my fellow classmates who helped me to get started on the piles of paperwork and computer programs. Most of all, I thank Major Ron Hitzelberger who as my thesis advisor gave me the latitude and academic freedom to accomplish my task.

I offer a special thanks to my life long fan club - my parents, Earl and Lazell Hunigan. Finally, as I entered this hallowed institution a bachelor and will be graduating as an extremely happy husband and father, I thank God for the love and support of my wonderful wife, Jane.

Kirk Alan Hunigan

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Abstract

As U.S. foreign policy calls for a decrease in Intermediate-range Nuclear Forces (INF) in Europe, the United States needs to increase its conventional capability in order to maintain vigilant deterrence against the Warsaw Pact forces. The objective of this study was to analyze Air Force Systems Command's industrial surge preparedness planning and policies and how they are implemented at five major product divisions.

This research documents findings and concerns about AFSC's surge preparedness planning and policies, outside influences and relationships, and recommendations for future industrial base initiatives. Interviews disclosed that industrial surge preparedness planning is a low priority responsibility. It is not sufficiently funded and rarely addressed at program reviews or milestone decisions. Furthermore, the using commands do not usually offer their surge requirements, but expect AFSC to determine the user's surge requirements for them. A survey indicated that for many programs, surge was not a requirement. However, tactical systems had the greatest share of surge requirements. The survey also indicated that program offices are seldom questioned about surge considerations from their chain of command or their users. Finally, the survey showed that many of the program and project managers have had little

to no exposure to surge preparedness planning through their formal education.

AN ANALYSIS OF AIR FORCE SYSTEMS COMMAND'S INDUSTRIAL SURGE PREPAREDNESS PLANNING

I. Introduction

Since the end of the Carter Administration and continuing through the Reagan Administration, national security advisors and the Department of Defense have been investigating and testing the capability of the U.S. defense industry to surge and mobilize in the event of a national emergency. Recent articles and studies state the United States is not prepared to surge or mobilize in order to meet the military's requirements during a national crisis or protracted conventional war.

Specific Problem

In regards to proposed reductions in Intermediate-range Nuclear Forces (INF) and the never ending threat of a conventional (non-nuclear) war with the Warsaw Pact Forces which could last several months or several years, numerous articles suggest that the U.S. Air Force may only be capable of sustaining combat operations for 30 days (21:18, 17:40-41, 4:40, 18:30-31, 31:28-30). For more than a decade, insufficient political/military commitment and funding support caused a reliance on technically complex force multipliers which resulted in a shortage of fighter/bombers,

weapons, and spare parts (27:1-47). In addition, the lack of financial incentives and capital investments, combined with foreign competition and multi-year hardware lead times, have retarded the U.S. military-industrial complex's ability to surge and mobilize in sufficient time at a significant production rate to meet the Air Force's wartime requirements (14:18-20, 22:37-44, 6:27-29). In order to support the future needs of the Air Force's operational forces, is Air Force Systems Command developing and acquiring weapon and support systems that the U.S. military-industrial complex can surge at acceptable rates during a national emergency?

Research Objective

The overall objective of this research is to determine, within Air Force Systems Command, what emphasis is placed on industrial surge preparedness planning during the development and acquisition of future weapons systems. The specific objectives are:

1. Determine what consideration is given by AFSC to industrial surge preparedness planning during the development and acquisition of future weapon and support systems.
2. Determine what consideration is given by using commands to industrial surge preparedness planning during the development and acquisition of future weapon and support systems.
3. Determine what consideration is given to industrial surge

preparedness planning during the milestone review decision process.

4. Determine what, if anything, impedes or prevents industrial surge preparedness planning within AFSC.

Scope

This study analyzed AFSC policies and practices to determine what emphasis each product division placed on industrial surge capability during the development and acquisition of future weapon systems. This research focused on AFSC's policies, plans and programs involving industrial surge preparedness planning but not industrial mobilization preparedness planning. However, the relationship between industrial surge and mobilization was addressed. The research also looked at a sampling of acquisition program offices and the relation between those offices and industrial surge preparedness issues. The research did not directly query the U.S. military-industrial complex's surge capabilities and preparedness nor directly seek their view of AFSC's industrial surge preparedness. However, documented information on the U.S. industrial complex's surge capabilities may be used in this study.

II. Literature Review

Introduction

This literature review defines industrial surge and mobilization, discusses its importance to the United States, and highlights several reasons for the decline of the great "arsenal of democracy" since World War II.

Definitions

Surge. Before there can be any discussion of the U.S.' industrial surge and mobilization capability, there must be a common understanding of industrial "surge" and "mobilization." According to Air Force Regulation 800-9, surge is "the accelerated production of selected items with existing facilities and equipment in a peacetime environment (no declared national emergency)" (10:1). In addition, an industrial facility should be able to increase production to a preplanned required output level within a 6 to 12 month period (9:10). For example, if the tensions in the United States began to rise because of infuriating events inflicted by rival nations and the national command authorities began anticipating a need for more weapons to deter or combat aggression, the national command authorities might request the military services to instruct their contractors to increase their productivity of specific weapons or weapon systems by up to fifty percent.

Mobilization. According to Dr. Ralph Sanders and Joseph E. Muckerman, who are professors of industrial preparedness, industrial mobilization

> denotes the preparation for war or other emergencies through the assembly and organization of the nation's resources - a series of actions by which U.S. industry and the Armed Forces are brought to a state of readiness for war or other crisis contingencies (24:57).

In addition, industrial mobilization may continue throughout a wartime or crisis situation for as long as the national command authorities deem to be necessary.

The distinction between surge and mobilization is that during peacetime, when there is no declared national emergency, "only existing peacetime priorities will be available to obtain materials, components, and other industrial resources" which are more limiting than wartime priorities for obtaining resources (10:1). During wartime or in a national emergency, the needs of the nation help to speed up the allocation of resources.

Importance of Industrial Surge and Mobilization

There are several reasons for the United States to maintain and enhance its ability to industrially surge and mobilize. Three major reasons are to deter war, to encourage arms control, and to achieve national objectives.

Deter War. Dr. Jacques S. Gansler's article "Industrial Preparedness: National Security in the Nuclear Age" addresses several reasons for revitalizing U.S.' defense industries

which are essential to its national security (15:484). Dr. Gansler, an expert in defense acquisition management and industrial preparedness planning, believes that improving the U.S.' industrial capability to quickly build military weapons and support equipment may deter war with the Soviet Union (15:484). He thinks the Soviet Union would be reluctant to start a war with the U.S. and its allies if they perceive the U.S.' industrial capability will become a significant factor in warfare like the U.S.' production rate during World War II. Dr. Gansler says that when a crisis situation requires some response by the U.S., the United States could "signal" its intentions by surging the U.S.' defense industries (15:490). In addition, he stated that by improving our industrial preparedness "this would simultaneously strengthen our conventional warfare deterrent and help to elevate the nuclear threshold" (15:484).

Encourage Arms Control. Dr. Gansler also sees increased industrial preparedness as a major factor in arms control; however, it "is currently being ignored" (15:490). Currently, if both the U.S. and the U.S.S.R. decided to reduce their quantities of weapons, and a crisis caused a need for more weapons, only "the Soviets would be able to increase arms production rapidly due to their state of preparedness.... [I]f the U.S. were prepared, its superior industrial strength would give it a decided advantage over the Soviets" (15:490).

Achieve National Objectives. In times of national emergency, the United States industry is expected to assist in the achievement of national objectives. The military spends up to 85 percent of its weapon system acquisition budget for conventional forces "to create a capability for protecting U.S. national security interests without having to resort to nuclear warfare" (24:59).

Background

Historically, the United States has never been adequately prepared for war. Jesse G. Mulkey, a retired U.S. Marine Corps colonel, stated that during the Spanish-American War the American artillery had no smokeless powder even though it was produced in the United States but not in sufficient quantities for the U.S. military's use during the war (20:53). As the "American gun batteries were quickly exposed to the Spanish by voluminous clouds of black smoke, they were quickly victimized by Spanish guns using smokeless powder" (20:53).

During World War I, a war for which the United States had three years to prepare, the U.S. armed forces entered battle using rifles, tanks, artillery, and planes supplied not by Americans but supplied by the British and French because the U.S. had not made enough military equipment (20:54). A 1980 House of Representatives Armed Services Committee report stated that a major factor contributing to

the U.S.' dependence on its allies was the long lead times for the production of critical war materials (27:7).

In 1939, the United States was again not adequately prepared for World War II. However, while producing war materials for its allies, and anticipating future U.S. involvement in WW II, the "American industry was able to produce over 67,000 aircraft, about 29,000 tanks, approximately 180 combatant ships, and other support vessels within 24 months after entering the war (27:8). Although the United States became the "arsenal of democracy" during World War II, its defense industry's preparedness for national emergencies has been declining since 1945 for several reasons.

Uneconomical for U.S. After World War II, with the advent of nuclear weapons the U.S.' national security policy deemphasized the need for a large and costly industrial military complex. Economically, as well as politically, it was easier to sell "more bang for the buck" when determining the return on an investment of nuclear weapons compared to large conventional forces. Consequently, the U.S.' belief in deterrence, mostly through nuclear retaliation and reducing the cost of national defense, allowed the Soviet Union's expansion of conventional forces to go unchallenged. As a result, the Warsaw Pact Forces pose an overwhelming conventional threat in addition to a nuclear threat to NATO forces. Now it is too expensive for the U.S. to acquire

conventional force parity with the U.S.S.R., and the cost of a conventional war with the U.S.S.R. would be economically unacceptable and unaffordable (24:59).

Short War Philosophy. The Soviet's conventional threat, coupled with its nuclear capabilities, causes controversy among U.S. national security planners. Will there be a short or long war? Sanders and Muckerman state the "short war" proponents believe the Warsaw Pact Forces' conventional capability is sufficient to destroy NATO's conventional forces within a few weeks (24:59). Although the United States positions conventional forces in Europe, near known Soviet military concentrations, the U.S. forces only have enough war reserves, spare parts and consumable items to last 30 days (24:59). The "short war" theorists believe that even if the Soviets allow U.S. industry to mobilize without disruption, it will take two years before enough hardware starts rolling off the assembly lines (24:59). With all of these factors taken into account, the "short war" theorists perceive the U.S. will use nuclear weapons within a month after hostilities start (24:58).

Uninterested Contractors. Although the government is preparing itself for industrial mobilization, Colonel Mulkey says there is little effort by the contractors to industrially mobilize (19:26). He cites an article, "A Primer on What It Takes to Stay Until the War is Over," which says

> contractors have become concerned that their efforts are more than a wasted exercise and that no one really cares because few provisions for funding...industrial preparedness measures have been made (19:26).

Therefore, contractors are withholding their support until enough money is paid into their coffers.

Industrial Deficiencies. In "The Health, and Illnesses of the U.S. Aerospace Industrial Base Pinpointed in Massive Air Force/Industry Study," Major General John T. Buck highlights the findings of Blueprint for Tomorrow (7:38). As a former Deputy Commander of the Aeronautical Systems Division, General Buck led more than 100 experts from industry and the Air Force on "Production Base Analysis" on aircraft, engines, tactical missiles and their support. General Buck stated that the area of facilities and processes was a major concern. The panel was appalled after determining 93 percent of 10,000 pieces of equipment, worth more than $50,000 a piece, were more than 15 years old (7:39). In addition, they viewed the Defense Industrial Plant Equipment Center's "resources as worthless to meet either peacetime or wartime needs" (7:39).

Manpower Limitations. Colonel Jerry C. Harrison, in his article "The PM's Role in Surge and Mobilization Capacity," discusses some manpower problems in industry and how they contribute factors to industry's present inability to surge or mobilize (16:17). In 1983, industry projects a manpower shortage of 250,000 machinists for the next five years (16:18). Unfortunately, as reported by Harrison, Harry Gray,

Chairman and CEO of United Technology Corporation, says "It takes the better part of a year to retrain someone from producing autos, for example, to work on high technology aerospace parts" (16:18). In productivity, Col Harrison cites an Air Force Systems Command study in which 21 percent of all manufacturing costs are wasted on inefficient labor practices (16:19).

Industrial Constraints. In "Industry Looks at the U.S. Ability to Surge," Robert L. Vawter discusses four categorical constraints to rapidly increasing production as identified during a simulation of industrial response (28:30). Physically, contractors are restrained by tooling and test equipment capacity, and "vendor responsiveness" (28:31). Procedurally, Vawter reports contractors are restrained by

> priority ratings, testing requirements, configuration and change handling, delays in emergency construction approval, production process delays, Federal Acquisition Regulations...and delays in bringing additional capacity at the prime and subtier vendor levels (28:31).

Summary

This literature review briefly introduced the United States' industrial preparedness for a national emergency. It defined industrial surge and mobilization and pointed out their differences. The review also emphasized that the importance of industrial surge and mobilization is to deter war, encourage arms control, and hopefully achieve national

objectives without the use of nuclear weapons. Finally, the literature review discussed the attractiveness of nuclear versus conventional force expenditures, short war predictions, uninterested contractors, and overall industrial deficiencies as contributing factors to the decline of the American defense industry's surge and mobilization capability.

III. Methodology

Conducting interviews and issuing survey questionnaires were the two ways data and information was collected for this research project.

Interview

Conducting interviews served as the primary means of gathering data on AFSC's industrial surge policies, plans and programs. Both semi-structured and unstructured interviews were conducted with Air Staff, HQ AFSC, and product division personnel whose responsibilities included industrial surge preparedness planning. The interviews helped to identify surge policies, plans and programs; and how they were being implemented. The interviews also helped to determine the effectiveness of AFSC surge preparedness planning. The semi-structured interview questions are provided as Appendix A of this report.

The Aerospace Industrial Modernization Office (HQ AFSC/PLM) located at Wright-Patterson AFB, Ohio was a major point of contact for surge related activities within AFSC. The Industrial Base Division, Directorate of Manufacturing, ASD (ASD/PMDI), also at Wright Patterson AFB, was a major source of assistance.

Survey

Survey questionnaires were sent to a random sampling of AFSC acquisition programs in which the questionnaires were addressed to the respective program managers. A mail survey was chosen for several reasons. First, time and scheduling restrictions prevented conducting face-to-face or telephone interviews with the large sampling of program managers. Second, except for ASD, all the product divisions were located more than three hundred miles from AFIT which is located at Wright-Patterson AFB, OH. A third consideration for using the mail survey was that it was the least costly alternative of gathering information and data in terms of manhours. Finally, according to C. William Emory in his book Business Research Methods, "mail surveys are typically perceived as being more impersonal, providing more anonymity that the other communications modes" (13:172).

The purpose of the survey was to gain information about surge preparedness planning within acquisition System Program Offices (SPOs) of Air Force Systems Command. Questions 1-5 asked descriptive questions about the SPOs system type, acquisition phase, age, cost, and number of production deliverable items. Question 6 asked the respondents to identify the primary user command(s). Questions 7-16 gathered information about the surge considerations, requirements, capabilities, planning, funding, contractual commitments, and impediments/barriers. Finally, questions

17-26 collected information about the respondent's knowledge of surge preparedness planning, organization, rank, job, management experience, and education. The survey questionnaire is provided as Appendix C to this report.

Survey Pretest. Twenty-six program and project managers, enrolled in the AFIT Systems 400 course, pretested the questionnaire. Their comments helped to change the format of some of the questions.

Population. The population consisted of all publicly disclosed acquisition program management offices within five AFSC product divisions. Classified program offices were not included in the population. Organizational charts were collected from the Aeronautical Systems Division (ASD), Electronic Systems Division (ESD), Armaments Division (AD), Space Division (SD), and the Ballistic Missile Office (BMO) listing various directorates and program offices for each division. Since some program offices were not specifically identified under certain product division directorates, additional information was collected on publicly disclosed program offices at ASD, ESD and AD. The January 1987 and July 1986 editions of Air Force Magazine gave complete listings of the publicly disclosed program offices within ASD and ESD respectively (8:66-79, 9:52-59). A complete listing of AD publicly disclosed acquisition program offices was also collected. After all the above information was collected,

the population of acquisition program offices was calculated to be 353 (Table 1).

Table 1

Research Population

Product Divisions	AD	ASD	BMO	ESD	SD
Program Offices	37	166	3	117	19

Sample. The research population was divided into a stratified sample. The stratification was done to proportionately examine the differences among the 5 product divisions in the population of interest.

The sample size needed to yield a 90 percent confidence interval ± 5 percent for the research population was computed by using the following formula (10:11-14):

$$n = \frac{N(Z^2) \times p(1-p)}{(N-1)(d^2) + (Z^2) \times p(1-p)}$$

where n = sample size
N = population
p = maximum sample size factor (.50)
d = desired tolerance (.09)
Z = factor of assurance (1.28) for 90% Confidence Interval

The calculated sample size was 54.

In order to account for an estimated 46 percent questionnaire return rate, 116 (353 x 33%) surveys were sent

to acquisition program managers at the 5 product divisions listed below (Table 2).

Table 2

Research Sample

Product Divisions	AD	ASD	BMO	ESD	SD
Program Offices	63	55	3	39	7

The program offices were randomly selected such that 33 percent of the program offices of each product division received questionnaires except BMO which was sent 3 questionnaires to insure at least 1 return.

Survey Approval. A survey questionnaire package was sent to the Air Force Survey Control Office for approval. The package included: a request for approval letter which described the purpose, objectives, population, sample and estimated costs; questionnaire cover letter; and pretested questionnaire. Within three weeks, the Air Force Survey Control Office approved the survey and provided some question format suggestions.

Survey Implementation. Upon notification of survey approval, suggested comments were incorporated in to the

questionnaire. A questionnaire with a return mailing envelope was sent to each member of randomly selected sample. The respondents were given approximately ten days to complete and return the questionnaire.

Data Analysis. The survey data was analyzed to determine the appropriate classification for level of measurement. Roger L. Dominowski in his book Fundamentals of Research stated that there are 4 scales of measurement: nominal, ordinal, interval and ratio (12:46-52). The "nominal scale consists of simply a set of mutually exclusive categories" in which a data item can only be assigned to one category and no other categories (12:46). Adding onto the requirements for nominal level data, ordinal level data is a set of items which can be also be ranked (12:46). In addition to being nominal and ordinal, interval data represents order among items on a scale "in terms of the characteristic being measured and the distances between items", like a scale on a thermometer (12:47). Finally, ratio level data is just like interval data "plus a true zero point" like a the scale on a ruler (12:49). However, questions 3, 4, 5, and 22 gathered ordinal level data.

In order to analyze the data, the statistical software package SAS was used on the AFIT Classroom Support Computer (CSC), a VAX 11/785 computer using a VMS operating system.

Frequencies and Crosstabulations were the two statistical techniques used to analyze the data. A frequency

is the number of occurrences of an event within a specified interval (11:7). For instance, Question 19 asked for the rank of the respondent. The PROC FREQ function of SAS calculated the frequency of how many lieutenants, captains, majors, and colonels responded to the survey (25:45-47). Crosstabulation tables show the joint distribution of two or more variables (25:45). For example, the SAS PROC FREQ function can be used to calculate the number of respondents who are lieutenants and who are assigned to ASD. The SAS program used to calculate the research data is attached as Appendix D.

Limitations

Since this analysis of industrial surge planning preparedness within Air Force Systems Command is a research academic exercise, several sensitive issues were not addressed.

First, the policies and directives that govern industrial base planning are politically, not necessarily rationally, motivated both within and outside the Air Force. Although the U.S. House of Representatives Armed Services Committee was intensely interested in the health of the U.S. military-industrial complex in 1980, many other important issues overshadow industrial base planning today (27:1-52). Likewise under tight budgetary constraints and scrutiny, AFSC is in the business of acquiring highly sophisticated and

expensive weapon and support systems while continuously addressing unsavory congressional and media inquiries.

Since this research covered mainly publicly accessible materials and data, many classified issues and documents were not investigated or addressed for information security reasons.

The research was also limited by the sampling of Air Force personnel which were contacted through interviews and surveys. No general officers or senior civil service personnel, who are involved in policy making, were contacted.

No acquisition program managers were asked to disclose the amount or percentage of program funds that are allocated and budgeted for industrial base planning. Also no program managers were asked to candidly identify where industrial surge planning is located on their list of priorities and responsibilities.

IV. Findings

This chapter includes the findings from investigations into Air Force Systems Command's industrial surge policies, organizations, and acquisition program offices. Interviews at several organizational levels were used to acquire more detailed information about how AFSC manages surge related issues. A survey was used to solicit surge related information from program managers across five AFSC product divisions.

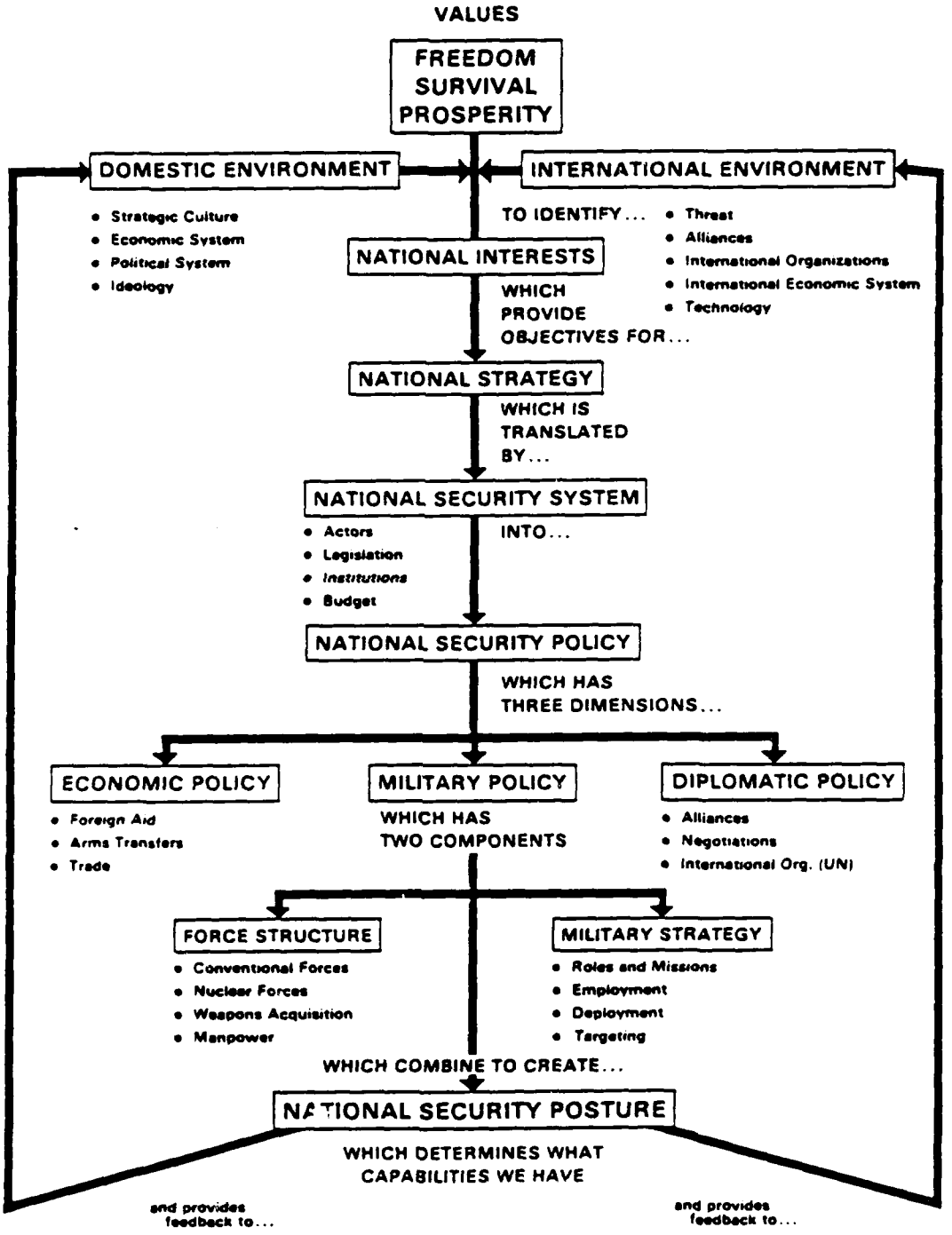
Policy

The industrial surge preparedness policies within AFSC are influenced by national security policy. (See Figure 1) National values, which are affected by the domestic and international environments, help to identify national interests. The "national interests provide objectives for national strategy which is translated by [the] national security system into national security policy" (5:2-24). National security policy influences defense policy which eventually influences AFSC policies.

Annually, the Secretary of Defense issues Defense Guidance (DG) which influences the Industrial Base Program (IBP) policies within the Air Force and Systems Command. These policies are documented in several DoD directives and Air Force Regulations. AFR 78-10 addresses planning for

Figure 1

FRAMEWORK FOR ANALYZING NATIONAL SECURITY POLICY



(5:2-24)

"industrial responsiveness, preparedness, and productivity for peacetime as well as partial, full, and total industrial mobilization" (9:2). Since the manufacturing functional area within the program offices has most of the Air Force's IBP responsibilities, the Manufacturing Management Policy for Air Force Contracts regulation identifies the IBP policies manufacturing managers are to support (10:1-5). Likewise, AFSC has its own 78-10 and 800-9 regulations which specify how IBP policies are to be implemented (2:1-3, 3:1-11).

Interview Questionnaire

Interviews were conducted with industrial base planning personnel at the Air Staff (HQ USAF/AQCM), the Aerospace Industrial Modernization (AIM) Office (AFSC/PLM), and five AFSC product divisions (AD, ASD, BMO, ESD, & SD). A list of the persons interviewed is provided as Appendix B. Except for the face-to-face interviews held at Wright-Patterson AFB, OH with personnel from the (AIM) Office and ASD, all other interviews were conducted over the telephone. In order to ensure the collection of candid information, anonymity was provided to the interview participants because industrial base planning is a politically sensitive issue in the Air Force. For this reason, all comments within quotations were provided by the persons interviewed. Their responses do not necessarily reflect the policies and opinions of their organization or the U.S. Air Force. Explanations of each comment are provided when necessary.

A list of ten questions was used to guide the interviews. This list has been provided as Appendix A.

Question 1.

What is your job?

All of the interview participants work in the manufacturing functional area of their respective organizations. Eight are responsible for industrial base planning. Of those eight, five work at the five product divisions previously identified. In addition to industrial base planning, the five manage Production Base Analysis (PBA), Technology Modernization (Tech Mod) programs, Manufacturing Technology (MANTECH) programs, Industrial Modernization Incentives Programs (IMIPs) for their respective product divisions. They also provide support to acquisition program offices during contractual negotiations, milestone reviews, and periodic program reviews. The two interview participants in the AIM Office support the PBA, Tech Mod, MANTECH, and IMIP activities for AFSC in addition to performing special studies on the industrial base. The ninth participant is a Program Element Monitor (PEM) who coordinates most industrial base programs for the Air Staff.

Question 2.

From what sources have you learned about surge preparedness planning?

Generally, all of the people interviewed initially learned about surge preparedness planning on-the-job and by

reading Air Force regulations. One who learned in the "School of Hard Knocks" said he gained a lot of knowledge by weaning himself on a production base analysis which was later cancelled by his commander. One respondent learned about surge preparedness while working in an AFPRO.

Question 3.

How are you involved in surge preparedness planning?

The PEM for industrial base programs monitors the IBP activities for the Air Force. Within AFSC, industrial base planning occurs in the AIM office and the product divisions in which ASD is the most notable. ASD has organized conferences between industry and the Air Force to examine their relationship and the status of the industrial base. Their proceedings are recorded in Blueprint for Tomorrow (1).

Question 4.

What manufacturing experience do you have?

All of the interviewees have spent at least 5 years in manufacturing management serving both on the staff and supporting SPOs. With two people having over 25 years experience, the average experience time is slightly over 11 years per person.

Question 5.

What acquisition management experience do you have?

In addition to having experience in working for the manufacturing functional area, the personnel interviewed spent an average of 4 years working in SPOs.

Question 6.

What courses have you taken related to surge preparedness planning?

Only three participants stated that they had taken the basic production management courses AFIT PPM 153 and PPM 305 in which a couple of hours are devoted to industrial base issues. None of the three felt that they had learned anything substantial about surge planning. One interviewee recalled that the subject of surge preparedness planning did not cognitively register because "I was still trying to figure out what manufacturing meant". In general, all the IBP personnel interviewed felt that there was a lack of formal training.

Question 7.

Based on your experience, what, if anything, impedes or prevents surge preparedness planning?

The following is a list of responses with a short explanation of the comments if required:

- "Lack of emphasis." "Low priority." "My commander has other interests and priorities." "No national commitment - laissez faire attitude." "High level staffers get [illegible]

involved because it's their job but doesn't filter down." Without exception, the lack of emphasis by bosses, commanders, and national leadership was given as the primary reason for slowing down or halting surge preparedness planning. Apparently during peacetime, the national leadership has priorities in which surge planning is a low interest item and most of the chain of command treats surge planning accordingly.

- "No requirements." "Requirements identification problem." "Don't have defined requirements." Another major finding on the lack of support for surge planning is that the operational commands do not specify, itemize, or quantify their requirements to the responsible planning organizations. Often, the using commands request that the operationally inexperienced industrial base planners determine what the operational forces might need for their future surge situations.

- "No funding for contractors." "Industrial base planning requires funding and funding drives requirements." "JCS is interested [but] don't have money." Inadequate funding support was reported as a significant reason for delaying and stopping surge preparedness planning. This issue is related to the lack of emphasis of industrial surge planning addressed above.

- "Lack of experienced people." The need for more highly trained personnel is a major issue because there are higher manpower requirements in other functional areas.

- "How credible is contractor data?" The contractors are not in business to give anything to the government without a price attached. Another concern was that the government hardly ever tests or implements the plans to determine their validity.

- "Enormity of task." "No good definition of responsibilities for surge planning." "No good definition of responsibilities for surge." Two manufacturing managers believed that one of the major problems about IBP is the complexity of the problem. A spinoff problem of the IBP issue is determining the responsibilities of the OSD, the 3 services, and other officials.

- "One-time-buys." Each of the product division representatives expressed a feeling that the user normally requests only a specified number of production units to be delivered and the production line is closed after the last item is completed.

- "Paper requirements in peacetime versus wartime mental mindset." One product division IBP manager believes that during peacetime an over abundance of time and money is spent on bureaucratic documentation that reduces the available amount of resources which may be used for planning and preparation of wartime needs.

- "Short war philosophy or everything is possible." According to one of the industrial base planners, there are two prevalent philosophies that adversely effect IBP. Many people believe that the next war may only last a few weeks to a few months in which case U.S. industry will not have enough time to produce at surge rates. On the other hand, the "everything is possible" philosophy describes the belief that when war comes, American industry can turn into the great war material production industry as it had during World War II.

- "Contractor cut to bear minimum in test equipment." One of the interviewees, who had studied many Air Force acquisition contracts, stated that often the Air Force cuts test equipment down to the bear minimum to save costs. Unfortunately, the reduced extra capacity of test equipment limits the production through put.

- "Lack of viable surge planning numbers." Several of the AFSC product division representatives questioned the wisdom of asking contractors if they could double production and delivery rates within six months. They wanted to know what made 6 months a sacred deadline.

- "Just in time production versus surge planning." Having over 15 years of manufacturing experience, one industrial base planner stated that "just in time production planning" was diametrically opposed to "surge production planning." Just in time production uses minimized material

inventories which reduce cost. Surge production planning requires larger inventories which are more costly.

Question 8.

> Does the user request certain weapon and support systems which can be produced at surge rates?

In every case the answer was no. Typically, an operational command would specify a number of production items to be built by a specified date. There was no evidence that user ever inquired about how design changes may effect production rates. This however was not an issue for one-of-a-kind or small quantity buys.

Question 9.

> What, if any, consideration is given to surge capability requirements in the milestone review decision process?

According to the responses, surge capability is almost never discussed at major program reviews because it is considered a low priority item.

Question 10.

> To increase the effectiveness of industrial surge preparedness planning, what suggestions would you make?

- "DoD needs to establish the real need for surge planning, maintain the desire, and provide direction." This was the most fundamental and popular suggestion for increasing the effectiveness of industrial surge preparedness planning. The industrial base planners felt that the DoD needs to realize the need and stress the importance of IBP

and provide direction down through each echelon of the DoD. It must become a "true management belief." The emphasis on IBP cannot be temporary or occasional to be effective. Several of the people interviewed believed that this fundamental change would increase funding and government/contractor support.

- "Determine requirements." For industrial surge preparedness planning to be more effective, the needs of the users must be determines first. Only after the users identify their requirement can the industrial base planners realistically attempt to support the users.

- "Requirements emphasized at decision points."

- "Centralized control of multi-service requirements and responsibilities."

- "Plan down to subtier vendors."

- "Make big distinction between planning for capability and buying capability."

- "Better documentation of benefits to capability."

- "Determine if foreign dependency is a problem."

- "Streamline acquisition requirements by reducing paperwork."

- "Need more experience and training."

Survey

In order to gather surge related information about thirty-three percent of the publicly disclosed program offices at five AFSC product divisions, a survey

questionnaire was prepared (Appendix C). The survey collected three types of data. Questions 1-6 collected general information about the program offices surveyed. Information on surge preparedness planning issues was gathered by questions 7-16. Finally, questions 17-26 solicited information about the individuals who completed the questionnaire.

The results of the nominal level data are presented in tabular form. Each table contains frequency responses to one or more questions. In most the tables, crosstabulations were used to provide relational information about the data. The percentages take into account only the questionnaire responses that were received by 10 July 1986.

Response Rates. Survey questionnaires were sent to 115 program offices within Air Force Systems Command. Sixty-four survey questionnaires were returned and reviewed. Of the 64, six questionnaires were rejected because they had no responses to any of the questions. Therefore, the adjusted survey response rate for 58 questionnaires was 50.0%.

Survey Results. The survey questionnaire collected data and information in three subject areas: General System Description, Surge Preparedness Planning, and Respondent Description. The General System Description category will discuss Questions 1-6 which collect data about the respondents System Program Office (SPO). The Surge Preparedness Planning section is the heart of data collection

which includes Questions 7-16. Finally, the Respondent Description category, Questions 17-26, discusses background information about the respondent.

General System Description. Of the 58 responses collected, Table 3 shows that 46.6% of the program offices were developing or acquiring aircraft or C3I systems. The Other category, which accounted for 36.2% of the responses, included trainers, engines, flight control systems, and many other small groupings of systems.

TABLE 3

Type of Weapon or Support System

PROJECT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
AIRCRAFT	10	17.2	10	17.2
C3I	17	29.3	27	46.6
MISSILE	4	6.9	31	53.4
MUNITIONS	3	5.2	34	58.6
SATELLITE	3	5.2	37	63.8
OTHER	21	36.2	58	100.0

When the systems are examined cross-sectionally, the systems are represented in all five development and acquisition phases. Table 4 shows that 69% of the SPOs were in full scale development, production, or the post-production phase.

TABLE 4

System by Acquisition Phase

FREQUENCY / PERCENT	CONCEPT EXPLORAT	DEM VAL	FSD	PROD/ DEPLOY	POST PROD	TOTAL
AIRCRAFT	3	2	1	4	0	10
	5.17	3.45	1.72	6.90	0.00	17.24
C3I	1	4	7	5	0	17
	1.72	6.90	12.07	8.62	0.00	29.31
MISSILE	0	0	2	1	1	4
	0.00	0.00	3.45	1.72	1.72	6.90
MUNITIONS	1	0	0	2	0	3
	1.72	0.00	0.00	3.45	0.00	5.17
SATELLITE	0	1	1	1	0	3
	0.00	1.72	1.72	1.72	0.00	5.17
OTHER	4	2	10	4	1	21
	6.90	3.45	17.24	6.90	1.72	36.21
TOTAL	9	9	21	17	2	58
	15.52	15.52	36.21	29.31	3.45	100.00

Based on the commencement of concept exploration, 51.7% of the SPOs surveyed are between 2 and 9 years old (Table 5). The 10 systems listed as not applicable to having concept exploration are systems that were mainly modifications to existing systems such as aircraft or subsystems of major systems such as flight control systems.

TABLE 5

When Concept Exploration Began by System

FREQUENCY / PERCENT	AIRCRAFT	C3I	MISSILE	MUNITION	SATELLIT	OTHER	TOTAL
DID NOT ANSWER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 1.72	1 1.72
N/A	3 5.17	2 3.45	0 0.00	0 0.00	0 0.00	5 8.62	10 17.24
BEFORE 1974	2 3.45	4 6.90	0 0.00	0 0.00	1 1.72	2 3.45	9 15.52
1974-1977	1 1.72	2 3.45	2 3.45	0 0.00	0 0.00	1 1.72	6 10.34
1978-1981	0 0.00	4 6.90	1 1.72	1 1.72	2 3.45	3 5.17	11 18.97
1982-1985	3 5.17	4 6.90	1 1.72	2 3.45	0 0.00	9 15.52	19 32.76
AFTER 1985	1 1.72	1 1.72	0 0.00	0 0.00	0 0.00	0 0.00	2 3.45
TOTAL	10 17.24	17 29.31	4 6.90	3 5.17	3 5.17	21 36.21	58 100.00

Table 6 shows that 51.7% of the SPOs surveyed have an estimated cost less than $100 million. Of that percentage, C3I and "other" systems account for 46.6% of the 58 SPOs surveyed.

TABLE 6

System Cost by System

FREQUENCY / PERCENT	AIRCRAFT	C3I	MISSILE	MUNITION	SATELLIT	OTHER	TOTAL
DID NOT ANSWER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 3.45	2 3.45
> $100M	1 1.72	3 5.17	0 0.00	1 1.72	0 0.00	8 13.79	13 22.41
$100M - $499M	0 0.00	9 15.52	0 0.00	0 0.00	1 1.72	7 12.07	17 29.31
$500M - $999M	1 1.72	1 1.72	0 0.00	1 1.72	0 0.00	3 5.17	6 10.34
OVER $1B	7 12.07	3 5.17	4 6.90	1 1.72	2 3.45	0 0.00	17 29.31
UNKNOWN	1 1.72	1 1.72	0 0.00	0 0.00	0 0.00	1 1.72	3 5.17
TOTAL	10 17.24	17 29.31	4 6.90	3 5.17	3 5.17	21 36.21	58 100.00

Only 27.6% of the SPOs responding in the survey will have production runs greater than 100 units (Table 7). This percentage includes all of those SPOs dedicated towards the acquisition of munitions and missiles.

TABLE 7

Production Units by System

FREQUENCY / PERCENT	AIRCRAFT	C3I	MISSILE	MUNITION	SATELLIT	OTHER	TOTAL
DID NOT ANSWER	1 1.72	3 5.17	0 0.00	0 0.00	0 0.00	5 8.62	9 15.52
1	0 0.00	2 3.45	0 0.00	0 0.00	0 0.00	3 5.17	5 8.62
2-10	1 1.72	3 5.17	0 0.00	0 0.00	1 1.72	4 6.90	9 15.52
11-100	2 3.45	5 8.62	0 0.00	0 0.00	1 1.72	3 5.17	11 18.97
101-500	3 5.17	1 1.72	0 0.00	0 0.00	0 0.00	2 3.45	6 10.34
501-1000	1 1.72	0 0.00	0 0.00	0 0.00	0 0.00	1 1.72	2 3.45
OVER 1000	2 3.45	3 5.17	4 6.90	3 5.17	1 1.72	3 5.17	16 27.59
TOTAL	10 17.24	17 29.31	4 6.90	3 5.17	3 5.17	21 36.21	58 100.00

Based on the number of programs surveyed, the tactical air forces are the largest consumers with 19 programs in various phases of development (Table 8). Space Command accounts for a major share of the programs in the "other" category.

TABLE 8

User by System

FREQUENCY / PERCENT	AIRCRAFT	C3I	MISSILE	MUNITION	SATELLIT	OTHER	TOTAL
DID NOT ANSWER	0 0.00	1 1.72	0 0.00	0 0.00	0 0.00	1 1.72	2 3.45
SAC	3 5.17	1 1.72	1 1.72	0 0.00	0 0.00	2 3.45	7 12.07
TAC	3 5.17	4 6.90	3 5.17	2 3.45	1 1.72	6 10.34	19 32.76
MAC	2 3.45	0 0.00	0 0.00	0 0.00	0 0.00	3 5.17	5 8.62
ATC	1 1.72	0 0.00	0 0.00	0 0.00	0 0.00	3 5.17	4 6.90
AFCC	0 0.00	3 5.17	0 0.00	0 0.00	0 0.00	0 0.00	3 5.17
AFLC	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 1.72	1 1.72
OTHER	1 1.72	8 13.79	0 0.00	1 1.72	2 3.45	5 8.62	17 29.31
TOTAL	10 17.24	17 29.31	4 6.90	3 5.17	3 5.17	21 36.21	58 100.00

Surge Preparedness Planning. All 58 respondents were asked if their user had considered production surge capability for the system. Table 9 shows that 10.34% of the users had considered surge capability. TAC accounted for 50% of the responses supporting the consideration surge capability. In addition, MAC and ATC also accounted for 1 response each for supporting the consideration of production surge capability.

TABLE 9

User by User Considered Surge Ability

FREQUENCY / PERCENT	DID NOT ANSWER	SURGE N/A	YES	NO	DO NOT KNOW	TOTAL
DID NOT ANSWER	2	0	0	0	0	2
	3.45	0.00	0.00	0.00	0.00	3.45
SAC	0	2	0	1	4	7
	0.00	3.45	0.00	1.72	6.90	12.07
TAC	0	6	3	3	7	19
	0.00	10.34	5.17	5.17	12.07	32.76
MAC	0	2	1	0	2	5
	0.00	3.45	1.72	0.00	3.45	8.62
ATC	0	2	1	1	0	4
	0.00	3.45	1.72	1.72	0.00	6.9
AFCC	0	0	0	1	2	3
	0.00	0.00	0.00	1.72	3.45	5.17
AFLC	0	1	0	0	0	1
	0.00	1.72	0.00	0.00	0.00	1.72
OTHER	0	6	1	8	2	17
	0.00	10.34	1.72	13.79	3.45	29.31
TOTAL	2	19	6	14	17	58
	3.45	32.76	10.34	24.14	29.31	100.00

In reference to Table 10, 20 out of 58 respondents reported that they at one time or another had considered surge preparedness planning. The relationship between the yes and no responses shows that the SPOs at ASD and AD had more consideration of surge preparedness planning than those SPOs which did not. Sixty percent of the SPOs that considered surge capability were at ASD. ESD and SD, on the other hand, reported more no than yes responses of the number of SPOs who considered surge preparedness planning. One might suspect the above analysis to be true since ASD and AD develop and acquire many more tactical systems than ESD and SD.

TABLE 10

Organization by SPO Considered Surge

FREQUENCY / PERCENT	DID NOT ANSWER	SURGE N/A	YES	NO	DO NOT KNOW	TOTAL
ASD	1	10	12	4	1	28
	1.72	17.24	20.69	6.90	1.72	48.28
ESD	1	8	2	7	1	19
	1.72	13.79	3.45	12.07	1.72	32.76
SD	0	1	1	2	0	4
	0.00	1.72	1.72	3.45	0.00	6.90
AD	0	1	5	1	0	7
	0.00	1.72	8.62	1.72	0.00	12.07
TOTAL	2	20	20	14	2	58
	3.45	34.48	34.48	24.14	3.45	100.00

Only 5 programs were identified as having a surge requirement. Although Table 11 shows that only 8.6% of the responding SPOs have a surge requirement, the magnitude of the number of SPOs having surge requirements is not all that important. As stated in the scope of this research, the intent of this investigation was to examine a sampling of all of AFSC's acquisition program offices in the five major product divisions. It was not necessary to acquire a sensitive listing of all of the SPOs that have surge requirements. Rather than seeking statistical significance in the numbers of SPOs who do and do not have surge requirements, it is still valuable to examine the distribution of SPOs with surge requirements. For instance, Table 11 shows that aircraft, missile, and munitions have surge requirements while C3I and satellite systems do not.

TABLE 11

System by Surge Requirement

FREQUENCY / PERCENT	DID NOT ANSWER	YES	NO	DO NOT KNOW	TOTAL
AIRCRAFT	1	2	6	1	10
	1.72	3.45	10.34	1.72	17.24
C3I	1	0	14	2	17
	1.72	0.00	24.14	3.45	29.31
MISSILE	0	1	1	2	4
	0.00	1.72	1.72	3.45	6.90
MUNITIONS	0	1	2	0	3
	0.00	1.72	3.45	0.00	5.17
SATELLITE	0	0	3	0	3
	0.00	0.00	5.17	0.00	5.17
OTHER	1	1	19	0	21
	1.72	1.72	32.76	0.00	36.21
TOTAL	3	5	45	5	58
	5.17	8.62	77.59	8.62	100.00

The significance of Table 12 is that the two major users, identified as having a relationship with SPOs that have surge requirements, are SAC and TAC.

TABLE 12

User by Surge Requirement

FREQUENCY / PERCENT	DID NOT ANSWER	YES	NO	DO NOT KNOW	TOTAL
DID NOT ANSWER	2 3.45	0 0.00	0 0.00	0 0.00	2 3.45
SAC	0 0.00	2 3.45	5 8.62	0 0.00	7 12.07
TAC	1 1.72	2 3.45	12 20.69	4 6.90	19 32.76
MAC	0 0.00	0 0.00	4 6.90	1 1.72	5 8.62
ATC	0 0.00	0 0.00	4 6.90	0 0.00	4 6.90
AFCC	0 0.00	0 0.00	3 5.17	0 0.00	3 5.17
AFLC	0 0.00	0 0.00	1 1.72	0 0.00	1 1.72
OTHER	0 0.00	1 1.72	16 27.59	0 0.00	17 29.31
TOTAL	3 5.17	5 8.62	45 77.59	5 8.62	58 100.00

Table 13 shows that the product divisions having SPOs with surge requirements are the Armaments and Aeronautical Systems Divisions which is related to the systems they develop and the users they support as identified in Tables 10 and 11.

TABLE 13

Organization by Surge Requirement

FREQUENCY / PERCENT	DID NOT ANSWER	YES	NO	DO NOT KNOW	TOTAL
ASD	2	4	20	2	28
	3.45	6.90	34.48	3.45	48.28
ESD	1	0	17	1	19
	1.72	0.00	29.31	1.72	32.76
SD	0	0	4	0	4
	0.00	0.00	6.90	0.00	6.90
AD	0	1	4	2	7
	0.00	1.72	6.90	3.45	12.07
TOTAL	3	5	45	5	58
	5.17	8.62	77.59	8.62	100.00

When program offices were asked about the likelihood that their program might require surge capability in the future, 8 respondents said yes (Table 14). This is an increase of 60% over those SPOs that are required to have surge capability. An additional interest item is that two C3I SPOs and one satellite SPO reported that they might have a future surge requirement.

TABLE 14

System by Future Surge Requirement

FREQUENCY / PERCENT	DID NOT ANSWER	YES	NO	NOT SURE	TOTAL
AIRCRAFT	0	2	7	1	10
	0.00	3.45	12.07	1.72	17.24
C3I	1	2	8	6	17
	1.72	3.45	13.79	10.34	29.31
MISSILE	0	1	1	2	4
	0.00	1.72	1.72	3.45	6.90
MUNITIONS	0	0	2	1	3
	0.00	0.00	3.45	1.72	5.17
SATELLITE	0	1	2	0	3
	0.00	1.72	3.45	0.00	5.17
OTHER	1	2	16	2	21
	1.72	3.45	27.59	3.45	36.21
TOTAL	2	8	36	12	58
	3.45	13.79	62.07	20.69	100.00

Although Table 11 pointed out that 5 SPOs had surge requirements, Table 15 shows that 7 SPOs have begun some kind of surge planning. This may be attributable to those SPOs who think that they may have a surge requirement in the future. Just like Table 11, Table 15 identifies aircraft, missiles, munitions, and one system in the "other" category as the areas where surge preparedness planning is occurring.

TABLE 15

System by Surge Planning Started

FREQUENCY / PERCENT	DID NOT ANSWER	SURGE N/A	YES	NO	TOTAL
AIRCRAFT	0	3	3	4	10
	0.00	5.17	5.17	6.90	17.24
C3I	2	4	0	11	17
	3.45	6.90	0.00	18.97	29.31
MISSILE	0	0	2	2	4
	0.00	0.00	3.45	3.45	6.90
MUNITIONS	0	0	1	2	3
	0.00	0.00	1.72	3.45	5.17
SATELLITE	0	0	0	3	3
	0.00	0.00	0.00	5.17	5.17
OTHER	1	12	1	7	21
	1.72	20.69	1.72	12.07	36.21
TOTAL	3	19	7	29	58
	5.17	32.76	12.07	50.00	100.00

When asked to identify the phase in which surge preparedness planning began or will begin, 14 respondents individually identified the appropriate accordingly (Table 16). Since only five SPOs have surge capability requirements (Table 11) and seven SPOs are doing surge planning, the results of Table 16 are suspicious. However, 64% of the programs reported that surge planning began or will begin during full scale development or the production phase.

TABLE 16

Phase Surge Planning Began by System

FREQUENCY / PERCENT	AIRCRAFT	C3I	MISSILE	MUNITION	SATELLIT	OTHER	TOTAL
DID NOT ANSWER	0 0.00	1 1.72	0 0.00	0 0.00	0 0.00	2 3.45	3 5.17
SURGE N/A	3 5.17	9 15.52	0 0.00	1 1.72	2 3.45	15 25.86	30 51.72
C/E	1 1.72	0 0.00	1 1.72	0 0.00	0 0.00	0 0.00	2 3.45
DEM/VAL	1 1.72	0 0.00	0 0.00	0 0.00	0 0.00	2 3.45	3 5.17
FSD	2 3.45	1 1.72	1 1.72	1 1.72	0 0.00	0 0.00	5 8.62
PROD/ DEPLOY	1 1.72	1 1.72	0 0.00	0 0.00	1 1.72	1 1.72	4 6.90
UNKNOWN	2 3.45	5 8.62	2 3.45	1 1.72	0 0.00	1 1.72	11 18.97
TOTAL	10 17.24	17 29.31	4 6.90	3 5.17	3 5.17	21 36.21	58 100.00

All 58 of the SPOs were asked to identify the phase in which funding began or will begin. Eleven SPOs responded positively (Table 17). Unfortunately, the table may have pointed out a possible anomaly in the response data. However, the results might suggest that funding might occur only 11 times during the five phases even though Table 16 shows surge planning beginning 14 times during the five phases. Therefore, some of the surge planning may be unfunded.

Of the programs that have or expect funding for surge planning, 81.8% of the funding begins during or after FSD. However, 55.6% of the funding has or will occur during the production/deployment phase.

TABLE 17

Funding for Surge Planning by System

FREQUENCY / PERCENT	AIRCRAFT	C3I	MISSILE	MUNITION	SATELLIT	OTHER	TOTAL
DID NOT ANSWER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 3.45	2 3.45
SURGE N/A	3 5.17	9 15.52	0 0.00	1 1.72	2 3.45	14 24.14	29 50.00
C/E	1 1.72	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 1.72
DEM/VAL	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 1.72	1 1.72
FSD	0 0.00	1 1.72	0 0.00	0 0.00	1 1.72	0 0.00	2 3.45
PROD/ DEPLOY	2 3.45	0 0.00	0 0.00	1 1.72	0 0.00	2 3.45	5 8.62
POST PROD /MOD	0 0.00	2 3.45	0 0.00	0 0.00	0 0.00	0 0.00	2 3.45
NEVER FUNDED	2 3.45	2 3.45	2 3.45	0 0.00	0 0.00	2 3.45	8 13.79
UNKNOWN	2 3.45	3 5.17	2 3.45	1 1.72	0 0.00	0 0.00	8 13.79
TOTAL	10 17.24	17 29.31	4 6.90	3 5.17	3 5.17	21 36.21	58 100.00

Of the respondents who reported that surge planning has or will be put on contract, 78.6% of the contract awards have or will occur during FSD or the production phase with 72.7% occurring in the production phase (Table 18).

TABLE 18

Surge Planning on Contract by System

FREQUENCY / PERCENT	AIRCRAFT	C3I	MISSILE	MUNITION	SATELLIT	OTHER	TOTAL
DID NOT ANSWER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 3.45	2 3.45
SURGE N/A	3 5.17	9 15.52	0 0.00	1 1.72	2 3.45	15 25.86	30 51.72
C/E	2 3.45	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 3.45
DEM/VAL	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 1.72	1 1.72
FSD	1 1.72	1 1.72	1 1.72	0 0.00	0 0.00	0 0.00	3 5.17
PROD/ DEPLOY	2 3.45	1 1.72	1 1.72	1 1.72	1 1.72	2 3.45	8 13.79
NEVER ON CONTRACT	1 1.72	3 5.17	2 3.45	0 0.00	0 0.00	1 1.72	7 12.07
UNKNOWN	1 1.72	3 5.17	0 0.00	1 1.72	0 0.00	0 0.00	5 8.62
TOTAL	10 17.24	17 29.31	4 6.90	3 5.17	3 5.17	21 36.21	58 100.00

Of the 58 program offices that responded to the survey, only 12 or less SPOs were ever questioned about surge preparedness planning (Table 19). Of those organizations who asked surge related questions to SPOs, product divisions lead all other categories of questioning with 45.5%.

TABLE 19

Questioning Organizations by System

FREQUENCY / PERCENT	AIRCRAFT	C3I	MISSILE	MUNITION	SATELLIT	OTHER	TOTAL
DID NOT ANSWER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 3.45	2 3.45
N/A	3 5.17	7 12.07	0 0.00	0 0.00	1 1.72	7 12.07	18 31.03
NEVER QUESTIONED	2 3.45	8 13.79	1 1.72	1 1.72	1 1.72	6 10.34	19 32.76
AFSC	0 0.00	0 0.00	1 1.72	0 0.00	0 0.00	0 0.00	1 1.72
HQ USAF	1 1.72	0 0.00	0 0.00	0 0.00	1 1.72	0 0.00	2 3.45
USER(S)	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 1.72	1 1.72
PROD DIV	1 1.72	0 0.00	1 1.72	1 1.72	0 0.00	2 3.45	5 8.62
OTHER	1 1.72	0 0.00	1 1.72	1 1.72	0 0.00	0 0.00	3 5.17
DO NOT KNOW	2 3.45	2 3.45	0 0.00	0 0.00	0 0.00	3 5.17	7 12.07
TOTAL	10 17.24	17 29.31	4 6.90	3 5.17	3 5.17	21 36.21	58 100.00

Question 16 was used to determine what, if anything, impedes or prevents surge planning and preparedness for SPOs. Low priority, followed by insufficient funding, and contractor support were identified as hampering surge planning and preparedness (Table 20).

TABLE 20

Barriers to Surge Planning by System

FREQUENCY / PERCENT	AIRCRAFT	C3I	MISSILE	MUNITION	SATELLIT	OTHER	TOTAL
DID NOT ANSWER	0 0.00	1 1.72	0 0.00	0 0.00	0 0.00	2 3.45	3 5.17
N/A	3 5.17	7 12.07	0 0.00	2 3.45	2 3.45	11 18.97	25 43.10
FUNDING	1 1.72	2 3.45	1 1.72	1 1.72	0 0.00	0 0.00	5 8.62
CONTRACTOR SUPPORT	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	3 5.17	3 5.17
LOW PRIORITY	3 5.17	2 3.45	1 1.72	0 0.00	1 1.72	0 0.00	7 12.07
NOTHING	3 5.17	5 8.62	2 3.45	0 0.00	0 0.00	5 8.62	15 25.86
TOTAL	10 17.24	17 29.31	4 6.90	3 5.17	3 5.17	21 36.21	58 100.00

Respondent Knowledge. Questions 17-26 were asked to determine the respondents background and knowledge of surge preparedness planning.

Officers and the civil servants, who responded to the survey, identified Defense Systems Management College and on-the-job training as the main sources of their knowledge about surge preparedness planning (Table 21). DSMC accounted for 32.4% and OJT accounted for 29.7% for the 31 respondents who had knowledge of surge preparedness planning.

TABLE 21

Rank by Surge Knowledge Source

FREQUENCY / PERCENT	DID NOT ANSWER	NEVER LEARNED	AFIT	DSMC	DSMC SC	OJT	OTHER	TOTAL
DID NOT ANSWER	0 0.00	1 1.72	0 0.00	0 0.00	0 0.00	0 0.00	1 1.72	2 3.45
2LT	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 1.72	1 1.72
1LT	0 0.00	5 8.62	2 3.45	0 0.00	1 1.72	1 1.72	0 0.00	9 15.52
CAPT	0 0.00	2 3.45	1 1.72	3 5.17	1 1.72	1 1.72	0 0.00	8 13.79
MAJ	0 0.00	1 1.72	1 1.72	2 3.45	0 0.00	7 12.07	0 0.00	11 18.97
LTC	1 1.72	5 8.62	0 0.00	4 6.90	0 0.00	2 3.45	2 3.45	14 24.14
COL	0 0.00	6 10.34	0 0.00	3 5.17	1 1.72	0 0.00	3 5.17	13 22.41
TOTAL	1 1.72	20 34.48	4 6.90	12 20.69	3 5.17	11 18.97	7 12.07	58 100.00

The number of government personnel who filled out the questionnaire for SPOs at ASD, ESD, SD, and AD were 28, 19, 4, and 7 respectively (Table 22). Although three survey questionnaire were sent to BMO, no one completed and returned a single copy to be added to the data base. All 116 surveys were addressed in care of the program managers of the stratified and randomly selected SPOs. At least one response was received from every officer grade. The percentage of respondents with a rank, or equivalent civilian grade, of major or higher was 65.5%.

TABLE 22

Organization by Rank

FREQUENCY / PERCENT	DID NOT ANSWER	2LT	1LT	CAPT	MAJ	LTC	COL	TOTAL
ASD	1	0	3	5	8	5	6	28
	1.72	0.00	5.17	8.62	13.79	8.62	10.34	48.28
ESD	1	0	5	2	3	6	2	19
	1.72	0.00	8.62	3.45	5.17	10.34	3.45	32.76
SD	0	0	0	1	0	1	2	4
	0.00	0.00	0.00	1.72	0.00	1.72	3.45	6.90
AD	0	1	1	0	0	2	3	7
	0.00	1.72	1.72	0.00	0.00	3.45	5.17	12.07
TOTAL	2	1	9	8	11	14	13	58
	3.45	1.72	15.52	13.79	18.97	24.14	22.41	100.00

Table 23 shows that project managers, program managers, and division chiefs were the main job classifications that responded to the survey. Having provided 44.8% of the responses, project managers responded more than twice than any other job category.

TABLE 23

Organization by Job

FREQUENCY / PERCENT	SPO DIRECTOR	DEP SPO DIR	SPO DIV CHIEF	PROJECT MGR	OTHER	TOTAL
ASD	4	1	3	17	3	28
	6.90	1.72	5.17	29.31	5.17	48.28
ESD	5	3	3	5	3	19
	8.62	5.17	5.17	8.62	5.17	32.76
SD	2	0	2	0	0	4
	3.45	0.00	3.45	0.00	0.00	6.90
AD	0	0	2	4	1	7
	0.00	0.00	3.45	6.90	1.72	12.07
TOTAL	11	4	10	26	7	58
	18.97	6.90	17.24	44.83	12.07	100.00

The cross-section of functional area to job description shows that 60.3% of the respondents classify themselves as working in program/project management (Table 24).

TABLE 24

Functional Area by Job

FREQUENCY / PERCENT	SPO DIRECTOR	DEP SPO DIR	SPO DIV CHIEF	PROJECT MGR	OTHER	TOTAL
PROG MGT	8	2	5	17	3	35
	13.79	3.45	8.62	29.31	5.17	60.3
CONTRAC-TING	0	0	0	2	1	3
	0.00	0.00	0.00	3.45	1.72	5.17
ENGR	0	0	1	3	0	4
	0.00	0.00	1.72	5.17	0.00	6.90
CONFIG	0	0	2	0	0	2
	0.00	0.00	3.45	0.00	0.00	3.45
PROGRAM CONTROL	0	0	1	2	1	4
	0.00	0.00	1.72	3.45	1.72	6.90
TEST & EVAL	3	2	0	2	2	9
	5.17	3.45	0.00	3.45	3.45	15.52
OTHER	0	0	1	0	0	1
	0.00	0.00	1.72	0.00	0.00	1.72
TOTAL	11	4	10	26	7	58
	18.97	6.90	17.24	44.83	12.07	100.00

Looking at the acquisition experience of the respondents, Table 25 shows that 40 of the respondents had 5 or more years of experience.

TABLE 25

Experience by Job

FREQUENCY / PERCENT	SPO DIRECTOR	DEP SPO DIR	SPO DIV CHIEF	PROJECT MGR	OTHER	TOTAL
LESS THAN 1	0 0.00	0 0.00	0 0.00	0 0.00	1 1.72	1 1.72
1-2	0 0.00	0 0.00	0 0.00	8 13.79	0 0.00	8 13.79
3-4	0 0.00	1 1.72	1 1.72	5 8.62	2 3.45	9 15.52
5-10	4 6.90	1 1.72	3 5.17	6 10.34	1 1.72	15 25.86
OVER 10	7 12.07	2 3.45	6 10.34	7 12.07	3 5.17	25 43.10
TOTAL	11 18.97	4 6.90	10 17.24	26 44.83	7 12.07	58 100.00

Examining Table 26, there is a noticeable difference in the numbers of senior and junior government personnel who have had some acquisition management training and those who have not. Nine out of 58 respondents who are lieutenant colonels or colonels or their equivalent civilian grades do not have any acquisition formal training. AFIT Systems 200 and DSMC are the two most notable courses acquisition personnel have taken.

TABLE 26

Acquisition Schools by Rank

FREQUENCY / PERCENT	DID NOT ANSWER	2LT	1LT	CAPT	MAJ	LTC	COL	TOTAL
SAS	0	1	1	0	0	0	0	2
	0.00	1.72	1.72	0.00	0.00	0.00	0.00	3.45
SYS 100	1	0	0	0	3	0	0	4
	1.72	0.00	0.00	0.00	5.17	0.00	0.00	6.90
SYS 200	0	0	5	2	1	2	0	10
	0.00	0.00	8.62	3.45	1.72	3.45	0.00	17.24
SYS 400	0	0	0	0	2	2	0	4
	0.00	0.00	0.00	0.00	3.45	3.45	0.00	6.90
DSMC	0	0	0	2	2	2	3	9
	0.00	0.00	0.00	3.45	3.45	3.45	5.17	15.52
DSMC SC	0	0	1	1	0	1	2	5
	0.00	0.00	1.72	1.72	0.00	1.72	3.45	8.62
NSMC	1	0	0	0	0	2	1	4
	1.72	0.00	0.00	0.00	0.00	3.45	1.72	6.90
OTHER	0	0	2	3	3	1	2	11
	0.00	0.00	3.45	5.17	5.17	1.72	3.45	18.97
NONE	0	0	0	0	0	4	5	9
	0.00	0.00	0.00	0.00	0.00	6.90	8.62	15.52
TOTAL	2	1	9	8	11	14	13	58
	3.45	1.72	15.52	13.79	18.97	24.14	22.41	100.00

Table 27 shows the relationship between the sources of surge planning knowledge and the acquisition courses that the government personnel have completed. Twenty-six of the 49 respondents who had attended and acquisition management course reported that they learned nothing about surge preparedness planning. Although 4 of the respondents (1 who had taken SAS and 3 who had taken AFIT Systems 200) stated that they learned about surge preparedness planning,

TABLE 27

Acquisition Schools by Surge Knowledge Source

FREQUENCY / PERCENT	DID NOT ANSWER	NONE	SAS	SYS 200	DSMC	DSMC SC	OTHER	TOTAL
SAS	0 0.00	1 1.72	1 1.72	0 0.00	0 0.00	0 0.00	0 0.00	2 3.45
SYS 100	0 0.00	4 6.90	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	4 6.90
SYS 200	0 0.00	7 12.07	0 0.00	3 5.17	0 0.00	0 0.00	0 0.00	10 17.24
SYS 400	2 3.45	2 3.45	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	4 6.90
DSMC	0 0.00	0 0.00	0 0.00	0 0.00	9 15.52	0 0.00	0 0.00	9 15.52
DSMC SC	0 0.00	3 5.17	0 0.00	0 0.00	1 1.72	0 0.00	1 1.72	5 8.62
NSMC	0 0.00	1 1.72	0 0.00	0 0.00	0 0.00	0 0.00	3 5.17	4 6.90
OTHER	0 0.00	8 13.79	0 0.00	0 0.00	1 1.72	2 3.45	0 0.00	11 18.97
NONE	0 0.00	8 13.79	0 0.00	0 0.00	0 0.00	0 0.00	1 1.72	9 15.52
TOTAL	2 3.45	34 58.62	1 1.72	3 5.17	11 18.97	2 3.45	5 8.62	58 100.00

beginning and intermediate level courses do not teach surge planning. However, DSMC addressed industrial surge issues to all nine DSMC graduates.

All the respondents were asked if they had taken any of range of professional military education courses. According to Tables 28, 25.9% of the respondents stated that they had taken no PME. Except for the rank of captain, all other ranks had respondents who had not taken any PME.

TABLE 28

Professional Military Education by Rank

FREQUENCY / PERCENT	DID NOT ANSWER	2LT	1LT	CAPT	MAJ	LTC	COL	TOTAL
SOS	0	0	5	5	0	2	0	12
	0.00	0.00	8.62	8.62	0.00	3.45	0.00	20.69
ACSC	0	0	0	2	5	4	1	12
	0.00	0.00	0.00	3.45	8.62	6.90	1.72	20.69
AWC	0	0	0	1	3	4	4	12
	0.00	0.00	0.00	1.72	5.17	6.90	6.90	20.69
ICAF	1	0	0	0	0	1	2	4
	1.72	0.00	0.00	0.00	0.00	1.72	3.45	6.90
OTHER	1	0	0	0	0	1	1	3
	1.72	0.00	0.00	0.00	0.00	1.72	1.72	5.17
NONE	0	1	4	0	3	2	5	15
	0.00	1.72	6.90	0.00	5.17	3.45	8.62	25.86
TOTAL	2	1	9	8	11	14	13	58
	3.45	1.72	15.52	13.79	18.97	24.14	22.41	100.00

Of the 43 respondents who have had courses in PME, Table 29 shows that at various PME schools there was some learning about surge preparedness planning: SOS - 2/12, ACSC - 6/12, AWC - 7/12, and ICAF - 3/4. These ratios show that it is at the senior service schools where it is more likely for students to learn about surge preparedness planning.

TABLE 29

Professional Military Education by Surge Knowledge

FREQUENCY / PERCENT	DID NOT ANSWER	NONE	SOS	ACSC	AWC	ICAF	OTHER	TOTAL
SOS	0	10	2	0	0	0	0	12
	0.00	17.24	3.45	0.00	0.00	0.00	0.00	20.69
ACSC	1	6	0	3	1	1	0	12
	1.72	10.34	0.00	5.17	1.72	1.72	0.00	20.69
AWC	0	5	0	1	6	0	0	12
	0.00	8.62	0.00	1.72	10.34	0.00	0.00	20.69
ICAF	0	1	0	0	0	3	0	4
	0.00	1.72	0.00	0.00	0.00	5.17	0.00	6.90
OTHER	0	1	0	0	0	0	2	3
	0.00	1.72	0.00	0.00	0.00	0.00	3.45	5.17
NONE	0	14	0	0	0	1	0	15
	0.00	24.14	0.00	0.00	0.00	1.72	0.00	25.86
TOTAL	1	37	2	4	7	5	2	58
	1.72	63.79	3.45	6.90	12.07	8.62	3.45	100.00

Summary

An investigation was conducted into Air Force Systems Command's polices, organizations, and acquisition program offices to determine the interest, emphasis, and knowledge of industrial surge preparedness planning. The interviews disclosed that industrial surge preparedness is a low priority responsibility. It is not sufficiently funded and rarely addressed at program reviews or milestone decisions. Furthermore, the using commands do not usually offer their surge requirements, but they expect AFSC to determine the user's surge requirements for them. The survey indicated that for many programs, surge is not a requirement. However, tactical systems had the greatest share of surge requirements. The survey also indicated that program offices are seldom questioned about surge considerations from their chain of command or their users. In addition, the survey showed that many of the program and project managers have had little to no exposure to surge preparedness planning through their formal education.

V. Conclusions and Recommendations

Introduction

This final chapter brings together what has been learned about the industrial preparedness planning in AFSC. It discusses the conclusions for the 4 research objectives given in Chapter 1. This chapter provides recommendations for improving industrial base planning. Also, additional observations and comments are provided about a recent break through in industrial base planning. Finally, the chapter concludes with by recommendations for future research.

Research Objective Conclusions

The four research objectives, as stated in Chapter 1, are:

1) Determine what consideration is given by AFSC to industrial surge preparedness planning during the development and acquisition of future weapon and support systems.

2) Determine what consideration is given by using commands to industrial surge preparedness planning during the development and acquisition of future weapon and support systems.

3) Determine what consideration is given to industrial surge preparedness planning during the milestone review decision process.

4) Determine what, if anything, impedes or prevents industrial surge preparedness planning within AFSC.

Research Objective 1.

> Determine what consideration is given by AFSC to industrial surge preparedness planning during the development and acquisition of future weapon and support systems.

Currently, AFSC views industrial surge preparedness planning as a low priority issue. The command is more concerned about today's peacetime issues and problems. Constrained by manpower and financial limitations, Air Force Systems Command allocates its resources towards the essentials in the development and acquisition of weapon and support systems. The command's three fundamental objectives are price, schedule, and performance. Seeking out the "Big 3", Congress and the Department of Defense are constantly inquiring into AFSC's business of "acquiring strength for tomorrow". While responding to Congressional and DoD demands, AFSC is continually parrying off media attacks about gross expenditures and managerial oversights.

AFSC's manufacturing element is the backbone for supporting all of the command's industrial base planning issues. Although industrial surge preparedness planning is an important development responsibility, AFSC maintains a skeleton crew of experienced manufacturing personnel. At the headquarters level, Aerospace Industrial Modernization Office (AFSC/PLM) sets policy and procedures, in addition to

advocating budget and funding, for the Manufacturing Technology (MANTECH) Program, the Technology Modernization (Tech Mod) Program/Industrial Modernization Incentive (IMIP) Program, industrial base planning, and industrial facilities. (3:2-3)

At the product divisions, the manufacturing functional area implements the manufacturing management policies set by the FAR, DoD, HQ USAF, and HQ AFSC. They also implement the defense industrial base and preparedness policies set by higher DoD authorities. While supporting manufacturing issues for the SPOs, they also manage Tech Mod/IMIP initiatives. In addition, manufacturing personnel conduct sector analysis to support industrial base planning. (3:3-4)

Research Objective 2.

> Determine what consideration is given by the using commands to industrial surge preparedness planning during the development and acquisition of future weapon and support systems.

The interviews and mail survey indicated that the user does not usually indicate or specify his surge related requirements. According to the interviews, a user normally requests that a specified number of product items be delivered based upon some delivery schedule. Usually, he does not request systems that are specifically designed to meet potential surge requirements in the future. He does not give AFSC guidance or requirements of his surge needs, but

allows AFSC to engage in a paper chase to determine what the user's surge requirements might be.

Research Objective 3.

> Determine what consideration is given to industrial surge preparedness planning during the milestone review decision process.

As it was determined during interviews with members of the manufacturing staff agencies at five product divisions, the issue of surge preparedness planning is hardly ever raised at milestone decision meetings. Although many programs do not have a surge requirement, nevertheless the issue of surge preparedness planning is a low priority item even for programs that have the requirement. The issue is low enough on the list of priorities that most of the program review time is spent on other issues such as cost, schedule and technical performance.

Research Objective 4.

> Determine what, if anything, impedes or prevents industrial surge preparedness planning within AFSC.

The following is a list of items which have adversely affected industrial surge planning that were identified through the literature review, personal interviews, and mail survey:

1) Lack of emphasis
2) No specified requirements
3) Insufficient funding
4) Insufficient experienced manpower

5) Credibility of contractor data

6) Enormity of the task

7) One-time buys

8) Peacetime versus wartime mental mindset

9) Short war philosophy

10) Insufficient quantities of test equipment

11) Lack of viable surge planning numbers

12) Just in time production versus surge planning

The research has found that the twelve problems listed above have in some way hampered industrial surge planning in Air Force Systems Command. The greatest of these is the low priority assigned to surge planning. Unfortunately, surge planning is one responsibility that is overlooked for political reasons. In peacetime and lean times, commanders and program managers have the awesome task of allocating scare resources among a myriad of opportunities and responsibilities. In addition, there is the attitude that if it's not important to one's boss, then spend the resources elsewhere. The overall effect of the low priority is that it causes many other problems such as the users passing off the responsibility of determining surge requirements, insufficient allocation of financial and manpower resources.

Recommendations

If surge preparedness planning is to be a viable program, the Department of Defense and Air Force Systems Command will have to research and implement several

initiatives if the DoD sincerely hopes to hasten the production and delivery of critical and necessary items in peacetime as well as wartime. Based on this author's research into industrial base planning, the following initiatives are suggested.

Determination of Requirements. The DoD and the services need to discuss and formulate a grand strategy for maximizing the use of the military industrial complex to support national defense objectives. Currently, there is very little strategic planning of resources (26:1). Once the national defense objectives and strategy have been determined, then the services can begin to determine their weapon and support requirements. After the users identify and specify their requirements, AFSC and AFLC can determine what industries and technologies to make investments.

Changing of Attitudes. Many mental mind sets keep the Air Force from being what it wants to be. The peacetime mental mind set and the short war philosophy need to be explored. It has been fourteen years since the Air Force fought in a major war. Since the Vietnam War, the Air Force, in some ways, appears to be planning for peacetime. Instead, the Air Force should be planning for wartime. No one really knows if or when the next war will come; nor does one know how long it will last. The short war philosophy only serves to limit the Air Force's capability of sustaining combat operations in the air.

Increased Emphasis on Industrial Base Issues. If industrial base planning, in which surge preparedness planning is a subset, is to be implemented effectively, then it must stressed at the top of the Department of Defense and all the way down to the headquarter's staffs and program offices. If program managers are never asked "What's the status of your contractor's surge capability and your plans?" then many program managers will probably never support their surge requirement.

Increased User Involvement. It should be the user's responsibility to determine their weapon and support requirements. It's hard to believe that the people dedicated to carrying out combat operations do not give a realistic disclosure of their anticipated surge and mobilization requirements to the people they expect to support them. Allowing AFSC and AFLC to operate in a vacuum gives the users exactly what they asked for - exactly nothing in some cases.

Multiyear Funding. Effective industrial surge planning requires adequate funding over several years. Multiyear funding offers the contractor the opportunity to make investments in personnel and equipment. A 1986 study of the forging industry stated that multiyear funding "is not only the most cited solution but essentially a consensus among both DoD and industry representatives" (23:29).

Warm Industrial Base Strategy. The Department of Defense needs to develop a strategy for insuring that the

U.S. defense industry is capable of supporting DoD requirements. Emerging and state-of-the-practice technologies need to be nurtured. If they are sporadically turned on and off, these technologies and associated industries will become slow to respond to DoD needs. In addition, all the services need to coordinate their lists of critical items to determine the location of vendor and sub-vendor bottlenecks in the delivery of piece-parts.

Education and Training. The research has shown that most of the people contacted through interviews and the mail survey learned about surge preparedness planning by OJT. In order to reinforce the importance and emphasis of industrial base planning, the DoD needs to incorporate IBP education and training at the appropriate developmental levels. The Air Force should get away from allowing a functional elite to be solely responsible and knowledgeable of industrial base issues.

An Evolving Methodology

During the first six months of 1987, the Aerospace Industrial Modernization Office began developing a methodology for addressing and solving many of today's industrial base problems. The methodology uses a matrix to compare systems against constraints. The "road map" enables one to see what are each system's major constraints, what are the costs of removing each constraint, and what are the benefits of removing [illegible] constraints. [illegible]

value of the "road map" is that it is applicable to peacetime and wartime. One can easily see how investments and expenditures towards the removal of individual constraints translates into extra industrial capability, shorter lead times, faster deliveries, and cost savings. Hopefully, the "road map" will get the support it needs to revolutionize and simplify the current DoD industrial base planning methods.

Recommendations for Future Research

This study was descriptive in nature and broad in scope. It highlighted issues and problems primarily in the area of industrial surge preparedness planning. Future research should be conducted on those present and future systems which have a surge requirement. Since further in-depth research could delve into sensitive information, the project should be managed by an organization which is equipped to handle security classified information. Finally, researching a system for the "road map" to determine its constraints in addition to its associated costs and benefits would be extremely worthwhile.

Appendix A: Interview Questionnaire

1. What is your job?

2. From what sources have you learned about surge preparedness planning?

3. How are you involved in surge preparedness planning?

4. What manufacturing experience do you have?

5. What acquisition management experience do you have?

6. What courses have you taken related to surge preparedness planning?

7. Based on your experience, what, if anything, impedes or prevents surge preparedness planning?

8. Does the user request certain weapon and support systems which can be produced at surge rates?

9. What, if any, considerations is given to surge capability requirements in the milestone review decision process?

10. To increase the effectiveness of industrial surge preparedness planning, what suggestions would you make?

Appendix B: List of Interviewees

HQ Air Force Systems Command

Major Mark Fredricks, AFSC/PLI
Mr Bob Rice, AFSC/PLI

Aeronautical Systems Division

Ms Etta Gayheart, ASD/PMDI

Armament Division

Mr J. Reginal Lewis, AD/PMD

Ballistic Missile Office

Mr A. Tommesfeld, BMO/AWMA

Electronic Systems Division

Mr Jerry Zohn, ESD/ALM-P

Space Division

Mr Edward S. Houston, SD/PDP

Appendix C: Survey Questionnaire

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE OH 45433-6583

19 June 1987

REPLY TO ATTN OF: LSG (Capt Hunigan)

SUBJECT: Survey on Industrial Surge Preparedness Planning

TO: Survey Participant

1. Please take 10 or 15 minutes to complete the attached questionnaire and return it in the enclosed envelope by 3 July 1987.

2. The survey measures the interest and support of industrial surge preparedness planning in the AFSC system program offices. The survey's primary objective is to determine if surveyed program and project offices have considered and supported surge preparedness planning in the advent that increased production rates of their weapon or support system are required to support a national emergency. Although surge capability is not applicable for some defense system acquisitions, the survey's secondary objective is to determine the sources of industrial surge information and education to acquisition program and project managers. The data we gather will become part of an AFIT research project and may influence AFSC system acquisition planning.

3. Your responses will be combined with other respondents and will not be attributed to you or your program. Although your participation is completely voluntary, we would certainly appreciate your help. If you have any questions, please contact Capt Kirk Hunigan at AUTOVON 785-6569. Thank you for your support.

JOHN DUMOND, Lt Col, USAF
Head, Department of System
Acquisition Management
School of Systems and Logistics

3 Atch
1. Survey
2. Return Envelope

USAF Survey Control Number (SCN) 87-74
Expires on 31 August 1987

SURVEY ON INDUSTRIAL SURGE PREPAREDNESS PLANNING

GENERAL ISSUE:

Since the beginning of the Reagan Administration, national security advisors and the Department of Defense have been investigating and testing the capability of the U.S. defense industry to surge and mobilize in the event of a national emergency. Some recent articles and studies show the United States is not prepared to surge or mobilize the production of military hardware in order to meet the military's requirements during a national crisis or protracted conventional war.

SPECIFIC PROBLEM:

For more than a decade, insufficient political/military commitment and funding support helped to cause a reliance on technically complex force multipliers which resulted in a shortage of fighter/bombers, munitions, and spare parts. In addition, the lack of financial incentives and capital investments, combined with foreign competition and multiyear hardware lead times, have retarded the U.S. military-industrial complex's ability to surge. In order to support the future needs of the Air Forces' operational forces, is Air Force Systems Command developing and acquiring weapon and support systems that the U.S. defense industry can produce at surge rates during a national emergency?

RESEARCH QUESTIONNAIRE OBJECTIVE:

The objective of this questionnaire is to determine the status and emphasis of industrial surge planning and preparedness among various program/project offices within Air Force Systems Command.

Instructions

Please indicate your response by circling the letter that best describes your answer to each question. Some questions may require more than one response.

To ensure your responses remain anonymous, please do not put your name on this questionnaire.

1. What type of end item is your SPO developing or acquiring? (If you are in a "Basket SPO" where there are many on going projects, select one project that is surge related and make your responses based on that project.)

   a. I work in Laboratory or Test & Evaluation (Go to #17).
   b. Aircraft
   c. C³I system (other than satellite)
   d. Missile
   e. Munitions (other than missile)
   f. Satellite
   g. Other (Please Specify) _____

2. What best describes the current phase of your program?

   a. Concept Exploration
   b. Demonstration/Validation
   c. Full-Scale Development
   d. Production/Deployment
   e. Post Production/Modification

3. When did Concept Exploration begin?

   a. Not applicable
   b. Before 1973
   c. Between 1974 and 1977
   d. Between 1978 and 1981
   e. Between 1982 and 1985
   f. After 1985

4. What is the estimated total cost, including production, of the program?

   a. Less than $100,000,000
   b. Between $100,000,000 and $499,999,999
   c. Between $500,000,000 and $999,999,999
   d. More than $1,000,000,000
   e. Unknown

5. Approximately, how many production units are scheduled to be produced?

   a. 1
   b. 2-10
   c. 11-100
   d. 101-500
   e. 501-1000
   f. More than 1000

6. Who will be the primary user command(s)?

   a. SAC
   b. TAC
   c. MAC
   d. ESC
   e. ATC
   f. AFCC
   g. AFLC
   h. AFSC
   i. Other (Please Specify) _____

7. Has the ability to surge production been considered by the using command?

   a. Surge not applicable
   b. Yes
   c. No
   d. Do not know

8. Has the ability to surge production been considered by the SPO?

   a. Surge not applicable
   b. Yes
   c. No
   d. Do not know

9. Does the program have a surge requirement?

   a. Yes
   b. No
   c. Do not know

10. Is it likely that the program will require surge capability in the future?

    a. Yes
    b. No
    c. Not Sure

11. Has the SPO started surge planning?

    a. Surge not applicable
    b. Yes
    c. No

12. During what program phase did/will surge planning begin?

    a. Surge not applicable
    b. Concept Exploration
    c. Demonstration/Validation
    d. Full-Scale Development
    e. Production/Deployment
    f. Post Production/Modification
    g. Unknown

13. During what program phase was/(will) surge planning initially (be) funded?

    a. Surge not applicable
    b. Concept Exploration
    c. Demonstration/Validation
    d. Full-Scale Development
    e. Production/Deployment
    f. Post Production/Modification
    g. Never funded
    h. Unknown

14. During what program phase was/(will) surge planning initially (be) put on contract?

    a. Surge not applicable
    b. Concept Exploration
    c. Demonstration/Validation
    d. Full-Scale Development
    e. Production/Deployment
    f. Post Production/Modification
    g. Never put on contract
    h. Unknown

15. Has your program ever been questioned about surge planning before? If yes, by whom?

    a. Surge not applicable
    b. Never questioned
    c. AFSC
    d. HQ USAF
    e. Using Command
    f. Your Product Division
    g. Other (Please Specify) _____
    h. Do not know

16. What impedes or prevents surge planning and preparedness on your program?

a. Surge not applicable
b. Funding
c. Personnel Support
d. Contractor Support
e. Low Priority
f. Nothing prevents surge planning

17. From what sources have you learned about surge preparedness planning?

a. Never learned
b. AFIT sponsored program
c. Defense Systems Management College
d. Defense Systems Management College Short Course
e. On the job (Please Specify) _____
f. Other (Please Specify) _____

18. Which Air Force organization are you in?

a. ASD
b. ESD
c. SD
d. AD
e. BMO
f. HQ AFSC
g. AFCMD
h. Other (Please Specify) _____

19. What is your current rank or equivalent grade?

	Military	Civilian
a.	2LT	GS-7
b.	1LT	GS-8,9
c.	CAPT	GS-10,11
d.	MAJ	GS-12
e.	LT COL	GS-13
f.	COL	GS-14,15

20. What is your job?

a. SPO Director
b. Deputy SPO Director
c. SPO Division Chief
d. Project Manager
e. Other (Please Specify) _____

21. In what functional area(s) of your program do you work? (Select all that apply)

a. Program/Project Management
b. Contracting/Manufacturing Management
c. Engineering
d. Configuration Management
e. Logistics Management
f. Program Control
g. Test and Evaluation
h. Other (Please specify) _____

22. How many years of acquisition/program management experience do you have?

a. Less than 1
b. 1-2
c. 3-4
d. 5-10
e. More than 10

23. Which systems acquisition courses and schools have you attended, taken by correspondence, or tested out of? (Select all that apply)

a. Systems Acquisition School
b. SYS 100, Acquisition Planning and Analysis
c. SYS 200, Acquisition Planning and Analysis
d. SYS 400, Intermediate Program Management
e. Defense Systems Management College
f. Defense Systems Management College Short Course(s)
g. National Security Management Course(s)
h. Other (Please Specify) _____
i. None of the above

24. In which systems acquisition courses and schools, listed in Question 23, have you read, received lectures, or discussed industrial surge preparedness planning?

a. None of the above
b. Systems Acquisition School
c. AFIT SYS 100, Acquisition Planning and Analysis
d. AFIT SYS 200, Acquisition Planning and Analysis
e. AFIT SYS 400, Intermediate Program Management
f. Defense Systems Management College
g. Defense Systems Management College Short Course(s)
h. National Security Management Course(s)
i. Other (Please Specify) _____

25. Which professional military education courses have you completed?

a. Squadron Officer's School
b. ACSC or other Intermediate Service School
c. AWC or other Senior Service School
d. Industrial College of the Armed Forces
e. Other (Please Specify) _____
f. None of the above

26. In which professional military education courses, listed above in Question 25, have you read, received lectures, or discussed industrial surge preparedness planning?

a. None of the above
b. Squadron Officer's School
c. ACSC or other Intermediate Service School
d. AWC or other Senior Service School
e. Industrial College of the Armed Forces
f. Other (Please Specify) _____

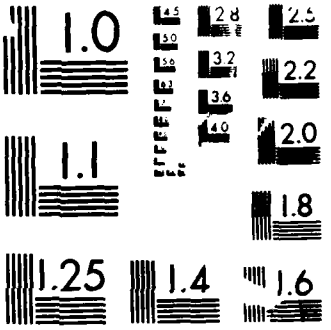
PLEASE RETURN THIS QUESTIONNAIRE IN THE RETURN ENVELOPE PROVIDED.

THANK YOU FOR HELP AND HAVE A NICE DAY!

AD-A187 992 AN ANALYSIS OF AIR FORCE SYSTEMS COMMAND'S INDUSTRIAL SURGE PREPAREDNESS PLANNING(U) AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF SYST K A HUNIGAN

2/2

UNCLASSIFIED SEP 87 AFIT/GSM/LSY/87S-10 F/G 15/5 NL



MICROCOPY RESOLUTION TEST CHART

Appendix D: SAS Computer Program

```
OPTIONS LINESIZE=78;
PROC FORMAT;
        VALUE YESFMT .='DID NOT ANSWER'
                    1='YES';
        VALUE PROJFMT .='DID NOT ANSWER'
                      1='LAB OR TEST & EVAL'
                      2='AIRCRAFT'
                      3='C3I'
                      4='MISSILE'
                      5='MUNITIONS'
                      6='SATELITE'
                      7='OTHER';
        VALUE PHASEFMT .='DID NOT ANSWER'
                       1='CONCEPT EXPLORATION'
                       2='DEMONSTRATION/VALIDATION'
                       3='FULL-SCALE DEVELOPMENT'
                       4='PRODUCTION/DEPLOYMENT'
                       5='POST PRODUCTION/MODIFICATION';
        VALUE CEBEGFMT .='DID NOT ANSWER'
                       1='N/A'
                       2='BEFORE 1974'
                       3='1974-1977'
                       4='1978-1981'
                       5='1982-1985'
                       6='AFTER 1985';
        VALUE COSTFMT .='DID NOT ANSWER'
                      1='LESS THAN $100,000,000'
                      2='$100,000,000 - $499,999,999'
                      3='$500,000,000 - $999,999,999'
                      4='OVER $1,000,000,000'
                      5='UNKNOWN';
        VALUE UNITSFMT .='DID NOT ANSWER'
                       1='1'
                       2='2-10'
                       3='11-100'
                       4='101-500'
                       5='501-1000'
                       6='OVER 1000';
        VALUE USERFMT .='DID NOT ANSWER'
                      1='SAC'
                      2='TAC'
                      3='MAC'
                      4='ESC'
                      5='ATC'
                      6='AFCC'
                      7='AFLC'
                      8='AFSC'
                      9='OTHER';
        VALUE YESNOFMT .='DID NOT ANSWER'
```

```
                    1='SURGE N/A'
                    2='YES'
                    3='NO'
                    4='DO NOT KNOW';
VALUE YENDTFMT      .='DID NOT ANSWER'
                    1='YES'
                    2='NO'
                    3='DO NOT KNOW';
VALUE YENNSFMT      .='DID NOT ANSWER'
                    1='YES'
                    2='NO'
                    3='NOT SURE';
VALUE SURBEFMT      .='DID NOT ANSWER'
                    1='SURGE N/A'
                    2='CONCEPT EXPLORATION'
                    3='DEMONSTRATION/VALIDATION'
                    4='FULL-SCALE DEVELOPMENT'
                    5='PRODUCTION/DEPLOYMENT'
                    6='POST PRODUCTION/MODIFICATION'
                    7='UNKNOWN';
VALUE SURFNFMT      .='DID NOT ANSWER'
                    1='SURGE N/A'
                    2='C/E'
                    3='DEM/VAL'
                    4='FSD'
                    5='PROD/DEPLOY'
                    6='POST PROD/MOD'
                    7='NEVER FUNDED'
                    8='UNKNOWN';
VALUE SURCTFMT      .='DID NOT ANSWER'
                    1='SURGE N/A'
                    2='C/E'
                    3='DEM/VAL'
                    4='FSD'
                    5='PROD/DEPLOY'
                    6='POST PROD/MOD'
                    7='NEVER PUT ON CONTRACT'
                    8='UNKNOWN';
VALUE QUESTFMT      .='DID NOT ANSWER'
                    1='N/A'
                    2='NEVER QUESTIONED'
                    3='AFSC'
                    4='HQ USAF'
                    5='USER(S)'
                    6='PROD DIV'
                    7='OTHER'
                    8='DO NOT KNOW';
VALUE IMPEDFMT      .='DID NOT ANSWER'
                    1='N/A'
                    2='FUNDING'
                    3='PERSONNEL SUPPORT'
                    4='CONTRACTOR SUPPORT'
```

```
                    5='LOW PRIORITY'
                    6='NOTHING';
VALUE LEARNFMT      .='DID NOT ANSWER'
                    1='NEVER LEARNED'
                    2='AFIT'
                    3='DSMC'
                    4='DSMC SC'
                    5='OJT'
                    6='OTHER';
VALUE ORGANFMT      .='DID NOT ANSWER'
                    1='ASD'
                    2='ESD'
                    3='SD'
                    4='AD'
                    5='BMO'
                    6='HQ AFSC'
                    7='AFCMD'
                    8='OTHER';
VALUE CURRKFMT      .='DID NOT ANSWER'
                    1='2LT'
                    2='1LT'
                    3='CAPT'
                    4='MAJ'
                    5='LTC'
                    6='COL';
VALUE YRJOBFMT      .='DID NOT ANSWER'
                    1='SPO DIRECTOR'
                    2='DEPUTY SPO DIRECTOR'
                    3='SPO DIV CHIEF'
                    4='PROJECT MGR'
                    5='OTHER';
VALUE FUNCTFMT      .='DID NOT ANSWER'
                    1='PROG MGT'
                    2='CONTRACTING'
                    3='ENGR'
                    4='CONFIG'
                    5='LOG'
                    6='PROG CNTRL'
                    7='TEST & EVAL'
                    8='OTHER';
VALUE EXPERFMT      .='DID NOT ANSWER'
                    1='LESS THAN 1'
                    2='1-2'
                    3='3-4'
                    4='5-10'
                    5='OVER 10';
VALUE ACSCHFMT      .='DID NOT ANSWER'
                    1='SAS'
                    2='SYS 100'
                    3='SYS 200'
                    4='SYS 400'
                    5='DSMC'
```

```
                    6='DSMC SC'
                    7='NSMC'
                    8='OTHER'
                    9='NONE';
VALUE SURACFMT  .='DID NOT ANSWER'
                    1='NONE'
                    2='SAS'
                    3='SYS 100'
                    4='SYS 200'
                    5='SYS 400'
                    6='DSMC'
                    7='DSMC SC'
                    8='OTHER'
                    9='NONE';
VALUE PMEFMT  .='DID NOT ANSWER'
                   1='SOS'
                   2='ACSC'
                   3='AWC'
                   4='ICAF'
                   5='OTHER'
                   6='NONE';
VALUE SUPMEFMT  .='DID NOT ANSWER'
                    1='NONE'
                    2='SOS'
                    3='ACSC'
                    4='AWC'
                    5='ICAF'
                    6='OTHER';
DATA INIT;
INFILE RESULTS;
INPUT PROJECT 1 PHASE 2 CEBEGIN 3 COST 4 UNITS 5
 USERSAC 6 USERTAC 7 USERMAC 8 USERESC 9 USERATC 10
 USERAFCC 11 USERAFLC 12 USERAFSC 13 USEROTH 14
 USURABLC 15 SSURABLC 16 SURREQ 17 SURREQFT 18
 SURPLAN 19 SURPLNBE 20 FUNDING 21 CONTRACT 22
 WHOQSNA 23 WHOQNEV 24 WHOQAFSC 25 WHOQUSAF 26
      WHOQUSER 27 WHOQPDIV 28 WHOQOTH 29 WHOQDNK 30
      IMPSNA 31 IMPFUND 32 IMPPERS 33 IMPCONTR 34
      IMPLOWPR 35 IMPNOTH 36 LRNAFIT 37 LRNDSMC 38
      LRNDSMCS 39 LRNOJT 40 LRNOTHER 41 LRNNEV 42
      ORGANIZ 43 RANK 44 JOB 45 FUNCPM 46 FUNCCMAN 47
      FUNCENGR 48 FUNCCFIG 49 FUNCLOG 50 FUNCPCTL 51
      FUNCTEST 52 FUNCOTH 53 EXPERNCE 54 ACQSAS 55
      ACQSYS1 56 ACQSYS2 57 ACQSYS4 58 ACQDSMC 59
      ACQDSMCS 60 ACQNSMC 61 ACQOTHER 62 ACQNONE 63
      SURNONE 64 SURSAS 65 SURSYS1 66 SURSYS2 67
      SURSYS4 68 SURDSMC 69 SURDSMCS 70 SURNSMC 71
      SUROTHER 72
   #2 PMESOS 1 PMEACSC 2 PMEAWC 3 PMEICAF 4 PMEOTHER 5
  PMENONE 6 SURGNONE 7 SURGSOS 8 SURGACSC 9 SURGAWC 10
      SURGICAF 11 SURGOTH 12;
IF USERSAC=1 THEN USER=1;
```

```
IF USERTAC=1 THEN USER=2;
IF USERMAC=1 THEN USER=3;
IF USERESC=1 THEN USER=4;
IF USERATC=1 THEN USER=5;
IF USERAFCC=1 THEN USER=6;
IF USERAFLC=1 THEN USER=7;
IF USERAFSC=1 THEN USER=8;
IF USEROTH=1 THEN USER=9;
IF WHOQSNA=1 THEN QUESTION=1;
IF WHOQNEV=1 THEN QUESTION=2;
IF WHOQAFSC=1 THEN QUESTION=3;
IF WHOQUSAF=1 THEN QUESTION=4;
IF WHOQUSER=1 THEN QUESTION=5;
IF WHOQPDIV=1 THEN QUESTION=6;
IF WHOQOTH=1 THEN QUESTION=7;
IF WHOQDNK=1 THEN QUESTION=8;
IF IMPSNA=1 THEN IMPEDES=1;
IF IMPFUND=1 THEN IMPEDES=2;
IF IMPPERS=1 THEN IMPEDES=3;
IF IMPCONTR=1 THEN IMPEDES=4;
IF IMPLOWPR=1 THEN IMPEDES=5;
IF IMPNOTH=1 THEN IMPEDES=6;
IF LRNAFIT=1 THEN LEARNED=1;
IF LRNDSMC=1 THEN LEARNED=2;
IF LRNDSMCS=1 THEN LEARNED=3;
IF LRNOJT=1 THEN LEARNED=4;
IF LRNOTHER=1 THEN LEARNED=5;
IF LRNNEV=1 THEN LEARNED=6;
IF FUNCPM=1 THEN FUNCTION=1;
IF FUNCCMAN=1 THEN FUNCTION=2;
IF FUNCENGR=1 THEN FUNCTION=3;
IF FUNCCFIG=1 THEN FUNCTION=4;
IF FUNCLOG=1 THEN FUNCTION=5;
IF FUNCPCTL=1 THEN FUNCTION=6;
IF FUNCTEST=1 THEN FUNCTION=7;
IF FUNCOTH=1 THEN FUNCTION=8;
IF ACQSAS=1 THEN ACSCHOOL=1;
IF ACQSYS1=1 THEN ACSCHOOL=2;
IF ACQSYS2=1 THEN ACSCHOOL=3;
IF ACQSYS4=1 THEN ACSCHOOL=4;
IF ACQDSMC=1 THEN ACSCHOOL=5;
IF ACQDSMCS=1 THEN ACSCHOOL=6;
IF ACQNSMC=1 THEN ACSCHOOL=7;
IF ACQOTHER=1 THEN ACSCHOOL=8;
IF ACQNONE=1 THEN ACSCHOOL=9;
IF SURNONE=1 THEN SUSCHOOL=1;
IF SURSAS=1 THEN SUSCHOOL=2;
IF SURSYS1=1 THEN SUSCHOOL=3;
IF SURSYS2=1 THEN SUSCHOOL=4;
IF SURSYS4=1 THEN SUSCHOOL=5;
IF SURDSMC=1 THEN SUSCHOOL=6;
IF SURDSMCS=1 THEN SUSCHOOL=7;
```

```
          IF SURNSMC=1 THEN SUSCHOOL=8;
          IF SUROTHER=1 THEN SUSCHOOL=9;
          IF PMESOS=1 THEN PME=1;
          IF PMEACSC=1 THEN PME=2;
          IF PMEAWC=1 THEN PME=3;
          IF PMEICAF=1 THEN PME=4;
          IF PMEOTHER=1 THEN PME=5;
          IF PMENONE=1 THEN PME=6;
          IF SURGNONE=1 THEN SURGPME=1;
          IF SURGSOS=1 THEN SURGPME=2;
          IF SURGACSC=1 THEN SURGPME=3;
          IF SURGAWC=1 THEN SURGPME=4;
          IF SURGICAF=1 THEN SURGPME=5;
          IF SURGOTH=1 THEN SURGPME=6;
LABEL      PROJECT='TYPE OF WEAPON OR SUPPORT SYSTEM'
           PHASE='ACQUISITION PHASE'
           CEBEGIN='WHEN CONCEPT EVALUATION BEGAN'
           COST='COST OF PROGRAM'
           UNITS='UNITS TO BE PRODUCED'
           USER='USER'
           USERSAC='SAC'
           USERTAC='TAC'
           USERMAC='MAC'
           USERESC='ESC'
           USERATC='ATC'
           USERAFCC='AFCC'
           USERAFLC='AFLC'
           USERAFSC='AFSC'
           USEROTH='OTHER USER'
           USURABLC='USING COMMAND CONSIDERED SURGE'
           SSURABLC='SPO CONSIDERED SURGE'
           SURREQ='SURGE REQUIREMENT'
           SURREQFT='SURGE REQUIREMENT IN FUTURE'
           SURPLAN='SURGE PLANNING'
           SURPLNBE='SURGE PLANNING BEGAN'
           FUNDING='FUNDING'
           CONTRACT='ON CONTRACT'
           QUESTION='QUESTIONED BY -'
           WHOQSNA='SURGE N/A'
           WHOQAFSC='AFSC'
           WHOQUSAF='HQ USAF'
           WHOQUSER='USER'
           WHOQPDIV='PRODUCT DIVISION'
           WHOQOTH='OTHER'
           WHOQNEV='NEVER QUESTIONED'
           WHOQDNK='DO NOT KNOW'
           IMPEDES='IMPEDES OR PREVENTS PLANNING'
           IMPSNA='SURGE N/A'
           IMPFUND='FUNDING'
           IMPPERS='PERSONNEL'
           IMPCONTR='CONTRACTOR'
           IMPLOWPR='LOW PRIORITY'
```

```
IMPNOTH='NOTHING'
LEARNED='WHERE LEARNED'
LRNNEV='NEVER'
LRNAFIT='AFIT'
LRNDSMC='DSMC'
LRNDSMCS='DSMC SHORT COURSE'
LRNOJT='ON THE JOB'
LRNOTHER='OTHER'
ORGANIZ='ORGANIZATION'
RANK='RANK'
JOB='JOB'
FUNCTION='FUNCTIONAL AREA'
FUNCPM='PROGRAM MGT'
FUNCCMAN='CONTRACTING/MANUFACTURING MGT'
FUNCENGR='ENGINEERING MGT'
FUNCCFIG='CONFIGURATION MGT'
FUNCLOG='LOGISTICS MGT'
FUNCPCTL='PROGRAM CONTROL'
FUNCTEST='TEST & EVALUATION'
FUNCOTH='OTHER'
EXPERNCE='EXPERIENCE'
ACSCHOOL='ACQUISITION SCHOOL'
ACQSAS='SAS'
ACQSYS1='SYS 100'
ACQSYS2='SYS 200'
ACQSYS4='SYS 400'
ACQDSMC='DSMC'
ACQDSMCS='DSMC SHORT COURSE'
ACQNSMC='NATIONAL SECURITY MGT COLLEGE'
ACQOTHER='OTHER'
ACQNONE='NONE'
SUSCHOOL='SURGE SCHOOL'
SURNONE='NONE'
SURSAS='SAS'
SURSYS1='SYS 100'
SURSYS2='SYS 200'
SURSYS4='SYS 400'
SURDSMC='DSMC'
SURDSMCS='DSMC SHORT COURSE'
PME='PME'
PMESOS='SOS'
PMEACSC='ACSC'
PMEAWC='AWC'
PMEICAF='ICAF'
PMEOTHER='OTHER'
PMENONE='NONE'
SURGPME='SURGE PME'
SURGNONE='NONE'
SURGSOS='SOS'
SURGACSC='ACSC'
SURGAWC='AWC'
SURGICAF='ICAF'
```

```
          SURGOTH='OTHER';
FORMAT PROJECT PROJFMT.
       PHASE PHASEFMT.
       CEBEGIN CEBEGFMT.
       COST COSTFMT.
       UNITS UNITSFMT.
       USERSAC USERTAC USERMAC USERESC USERATC USERAFCC USERAFLC
            USERAFSC USEROTH YESFMT.
       USURABLC YESNOFMT.
       SSURABLC YESNOFMT.
       SURREQ YENDTFMT.
       SURREQFT YENNSFMT.
       SURPLAN YESNOFMT.
       SURPLNBE SURBEFMT.
       FUNDING SURFNFMT.
       CONTRACT SURCTFMT.
       WHOQSNA WHOQNEV WHOQAFSC WHOQUSAF WHOQUSER WHOQPDIV
            WHOQOTH WHOQDNK YESFMT.
       IMPFUND IMPPERS IMPLOWPR IMPCONTR IMPNOTH IMPSNA YESFMT.
       LRNAFIT LRNDSMC LRNDSMCS LRNOJT LRNOTHER LRNNEV YESFMT.
       ORGANIZ ORGANFMT.
       RANK CURRKFMT.
       JOB YRJOBFMT.
       FUNCPM FUNCCMAN FUNCENGR FUNCCFIG FUNCLOG FUNCPCTL
            FUNCTEST FUNCOTH YESFMT.
       EXPERNCE EXPERFMT.
       ACQSAS ACQSYS1 ACQSYS2 ACQSYS4 ACQDSMC ACQDSMCS
            ACQNSMC ACQOTHER ACQNONE YESFMT.
       SURNONE SURSAS SURSYS1 SURSYS2 SURSYS4 SURDSMC
            SURDSMCS SURNSMC SUROTHER YESFMT.
       PMESOS PMEACSC PMEAWC PMEICAF PMEOTHER PMENONE YESFMT.
       SURGNONE SURGSOS SURGACSC SURGAWC SURGICAF SURGOTH
YESFMT.;
PROC FREQ;
     TABLES PROJECT / MISSING;
     TABLES PROJECT*(PHASE CEBEGIN COST UNITS USER) / MISSING;
     TABLES USER*USURABLC / MISSING;
     TABLES ORGANIZ*SSURABLC / MISSING;
     TABLES (PROJECT USER ORGANIZ)*SURREQ / MISSING;
     TABLES PROJECT*(SURREQFT SURPLAN SURPLNBE FUNDING CONTRACT
                     QUESTION IMPEDES) / MISSING;
     TABLES (LEARNED ORGANIZ)*RANK / MISSING;
     TABLES (ORGANIZ FUNCTION EXPERNCE)*JOB/ MISSING;
     TABLES SURREQ*(SURREQFT SURPLAN SURPLNBE FUNDING CONTRACT
                     QUESTION IMPEDES CEBEGIN SUSCHOOL SURGPME)
                        / MISSING;
     TABLES ORGANIZ*(PROJECT SURPLAN FUNDING CONTRACT QUESTION
                     IMPEDES SUSCHOOL SURGPME) / MISSING;
     TABLES (PROJECT ORGANIZ JOB FUNCTION EXPERNCE)*RANK /
                MISSING;
     TABLES JOB*EXPERNCE / MISSING;
     TABLES LEARNED*(EXPERNCE RANK JOB FUNCTION) / MISSING;
```

```
TABLES (RANK JOB FUNCTION EXPERNCE SUSCHOOL)*ACSCHOOL /
       MISSING;
TABLES (RANK JOB FUNCTION EXPERNCE SURGPME)*PME / MISSING ;

FORMAT USER USERFMT.
       QUESTION QUESTFMT.
       IMPEDES IMPEDFMT.
       LEARNED LEARNFMT.
       FUNCTION FUNCTFMT.
       ACSCHOOL ACSCHFMT.
       SUSCHOOL SURACFMT.
       PME PMEFMT.
       SURGPME SUPMEFMT.;
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Appendix E: Selected Survey Comments

( ) indicates survey response identification number.

8. Has the ability to surge production been considered?

Our plans for competition will build in dual production sources, each cable of full production thus giving us two fold surge capability. (7)

We have a leader-follower program going through FSD into production. (40)

9. Does the program have a surge requirement?

A surge capability is a side benefit of leader follower, but the real impetus is competition. (40)

15. Has your program ever been questioned about surge planning before? If yes, by whom?

Tested during "Trusted Agent" exercises. (2)

Army AMCCOM, single manager for conventional ammunition (32)

16. What impedes or prevents surge planning and preparedness on your program?

Implementation is problem. Losing time constantly. (2)

Bad answers - Surge is problem in avionics only if surges requires more test equipment to build upon to surge rate. Test equipment at least 12 month lead time. Contractors don't want to invest in capital not needed or only needed for short time. (9)

Competition in contracting (32)

Do not have enough production to really sustain our leader-follower program, and barely enough to sustain one contractor! (40)

17. From what sources have you learned about surge preparedness planning?

National Security Management, LTFT, and MIT. (2)

Reviewed briefings and regulatory materials. (6)

Air Staff (8)

A-10 Program Office and Staff Action Officer in OJCS (18)

Logic dictates the need. (25)

MCI's (26)

Mission analysis, projected attrition rates (28)

Supervisors (31)

AFSC/ASD surveys (33)

HQ AFSC Systo (40)

23. Which systems acquisition courses and schools have you attended, taken by correspondence, or tested out of?

Sloan Fellowship (MIT). (2)

AFIT 123, 223, 229 (12) [Learn nothing about surge at AFIT]

AFIT Masters - Systems Management (15)

AFIT SYS 223 (21) (30)

AFIT PPM 153, SAS Subcontract Mgmt (42)

24. In which systems acquisition courses and schools, listed in Question 23, have you read, received lectures, or discussed industrial surge preparedness planning?

MIT (2)

AFIT Masters - Systems Management (15)

DSMC Acquisition Logistics Course (21)

AFIT PPM 153

25. Which professional military education courses have you completed?

NSM seminar. (2)

26. In which professional military education courses, listed above in Question 25, have you read, received lectures, or discussed industrial surge preparedness planning?

NSM (2)

General Comments

It is hard to get excited about surge planning and identifying resources for it, when insufficient resources are available to cover firm requirements related to non-surge program activity.

As a result, our efforts along these lines really relate more to assuring a stable production capability it the future, than a surged capability -- and even that takes planning.

In my estimation, most of the surge planning effort expended is moot and tends to be non-productive. (6)

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As U.S. foreign policy calls for a decrease in Intermediate-range Nuclear Forces (INF) in Europe, the United States needs to increase its conventional capability in order to maintain vigilant deterrence against the Warsaw Pact forces. The objective of this study was to analyze Air Force Systems Command's industrial surge preparedness planning and policies and how they are implemented at five major product divisions.

This research documents findings and concerns about AFSC's surge preparedness planning and policies, outside influences and relationships, and recommendations for future industrial base initiatives. Interviews disclosed that industrial surge preparedness planning is a low priority responsibility. It is not sufficiently funded and rarely addressed at program reviews or milestone decisions. Furthermore, the using commands do not usually offer their surge requirements, but expect AFSC to determine the user's surge requirements for them. A survey indicated that for many programs, surge was not a requirement. However, tactical systems had the greatest share of surge requirements. The survey also indicated that program offices are seldom questioned about surge considerations from their chain of command or their users. Finally, the survey showed that many of the program and project managers have had little to no exposure to surge preparedness planning through their formal education.

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